

Intervention

An acceptance-oriented cognitive-behavioral therapy in multimodal rehabilitation: A pre-post test evaluation in highly distressed patients with rheumatic diseases

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ABSTRACT

Objective: To examine the potential effectiveness of a multimodal rehabilitation program including an acceptance-oriented cognitive-behavioral therapy for highly distressed patients with rheumatic diseases.

Methods: An observational study employing a one-group pre-post test design ($N = 25$). The primary outcome was psychological distress. Secondary outcomes were quality of life, illness acceptance, and coping flexibility. Group *pre-to-post* and *pre-to-12 months follow-up* treatment changes were evaluated by paired-samples *t*-tests and Cohen's effect sizes (*d*). Individual changes were evaluated by the reliable change index (RCI) and clinically significant change (CSC) parameters.

Results: Significant effects were found post-treatment and maintained at 12 months in psychological distress ($d > 0.80$), illness acceptance ($d = 1.48$) and the SF-36 subscales role physical, vitality, and mental health ($d \geq 0.65$). No significant effects were found for coping flexibility and the SF-36 subscales physical functioning, bodily pain, social functioning, and role emotional. Both a reliable (RCI) and clinically significant (CSC) improvement was observed for almost half of the highly distressed patients.

Conclusion: The patients enrolled in the multimodal rehabilitation program showed improved psychological health status from pre to post-treatment.

Practice implications: A randomized clinical trial is needed to confirm or refute the added value of an acceptance-oriented cognitive-behavioral therapy for highly distressed patients in rehabilitation.

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1. Introduction

Some patients with rheumatic diseases suffer from high levels of psychological distress and severely impaired daily functioning despite adequate medical treatment. Psychological distress refers to symptoms of depression or anxiety that impair the patient but do not need to meet the criteria for a clinical mood or anxiety disorder according to diagnostic criteria [1–3]. Highly distressed patients may be referred to multimodal rehabilitation programs for which small beneficial effects on disease activity, functional ability, and work status have been demonstrated [4]. A targeted treatment of psychological distress is, however, often not a priority

in rehabilitation; a subgroup of patients still reports high levels of psychological distress after rehabilitation [5]. This suggests that the focus of current multimodal rehabilitation programs is too exclusively on reducing functional limitations and increasing social participation while insufficiently addressing patients' psychological health status.

Psychological distress is associated with a variety of negative outcomes in rheumatic diseases: more severe pain, fatigue, and disability [6–8], poor adherence to treatment regimens [9], decreased effects of medication [10], and increased health care utilization [11,12] and medical costs [13]. Cognitive-behavioral therapy (CBT) in patients with somatic diseases, including rheumatic diseases, can effectively improve physical and psychological functioning and reduce long-term health care consumption [14–16]. Meta-analyses of randomized controlled trials in rheumatoid arthritis (RA) and osteoarthritis (OA) demonstrated that CBT has been effective in improving pain, disability, coping, self-efficacy, and psychological distress with small to moderate effect

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sizes [14,15,17–19]. The magnitude of the effect size, however, suggests that selected patients with high levels of psychological distress may benefit the most from CBT [17]. Thus, it appears useful to screen patients who are referred to multimodal rehabilitation for high levels of psychological distress and to offer these patients a multimodal rehabilitation program with integrated CBT.

We developed an acceptance-oriented CBT aimed at reducing psychological distress and stimulating cognitive-behavioral change for highly distressed patients with rheumatic diseases to be embedded in a multimodal rehabilitation program [20]. The choice for an acceptance-oriented CBT over traditional CBT or acceptance and commitment therapy (ACT) was theoretically grounded in the dual-process coping model [21] that stresses the fit between characteristics of the situation and the employed coping strategy and it was guided by evidence-based cognitive therapy principles [22] and by empirical evidence on the role of acceptance and coping flexibility in the adjustment to a chronic illness [23–27]. Patients with rheumatic diseases will need to deal with the adverse consequences of the disease and with a progressive, fluctuating, and often unpredictable disease course. A guiding principle of the acceptance-oriented CBT was that the restructuring of cognitions and behavior can help to deal with situations that can be changed, while acceptance of the inevitable consequences of the disease should be part of patients' coping repertoire to deal with situations that cannot be changed. In line with the dual-process coping model, it is assumed that a patient who uses both assimilative ways of coping (i.e., active attempts to alter an unsatisfactory situation in a way that fits personal goals and aspirations) and accommodative ways of coping (i.e., the adjustment of personal goals and aspirations to current situational limitations in order to accept the situation or appreciate the given situation less negative) will adapt most adequately to changing life circumstances and will maintain a positive satisfying life perspective.

The concept of coping flexibility is linked to the dual-process coping model. It refers to the ability to modify coping responses according to situational demands and involves having a repertoire of coping strategies, being aware of these coping options, and being able to shift to a different strategy across different situations. In experimental and cross-sectional studies, coping flexibility has been found to be positively associated with psychological functioning and to attenuate the negative impact of pain and disability on psychological well-being. Illness acceptance [28] and related constructs including pain acceptance [29] and pain accommodation [30] have been associated with less pain, distress and disability [24,29–32], and enhanced quality of life [33,34]. In intervention studies, acceptance-based approaches are associated with improved psychological and physical health and reduced health care use in chronic pain patients [25,35,36], suggesting the potential usefulness of acceptance in CBT. Thus, evaluating, challenging, and modifying patient's dysfunctional thoughts and behavioral activation were core elements of our CBT addressing changeable consequences and situations, while an acceptance-based approach was applied to address circumstances that cannot be changed.

Our proof-of-concept study examines the potential *effectiveness* of an intervention in clinical practice rather than its *efficacy* under controlled conditions [37]. We evaluated the potential short- and long-term effectiveness of the multimodal rehabilitation program extended with an acceptance-oriented CBT on psychological distress (both on group and individual level), quality of life, illness acceptance, and coping flexibility. In addition, we examined the association between changes in psychological distress and illness acceptance and coping flexibility, the two psychological processes assumed to reduce psychological distress and facilitate adjustment to the diseases.

2. Methods

2.1. Study design

An observational study employing a one-group pretest-post test design was conducted. Study participants enrolled in the multimodal rehabilitation program completed self-report questionnaires at pre-treatment ($n = 25$), post-treatment ($n = 22$), and 12 months follow-up ($n = 20$). The primary outcome measure was high psychological distress. The potential effectiveness of the rehabilitation program (on group level) was evaluated according to a predefined response rate stating that at post-treatment 60% of the highly distressed patients would be no longer classified as highly distressed.

2.2. Participants and procedure

Participants met the following inclusion criteria: 1) having an inflammatory rheumatic disease or generalized OA as diagnosed by the rheumatologist, 2) age ≥ 18 years, 3) referral to a multimodal rehabilitation program at the rheumatology day-care unit of our hospital, and 4) high levels of psychological distress based on an established cut-off composite score [38]. Exclusion criteria were: (1) severe psychopathology, (2) severe psychosocial or work-related problems that would interfere with the treatment, (3) severe physical or cognitive limitations, (4) current participation in other non-pharmacological treatments, and (5) insufficient command of the Dutch language.

Of 141 patients referred to multimodal rehabilitation, 87 patients (64%) were highly distressed. After assessment of inclusion and exclusion criteria by the multidisciplinary team and team conference, 35 patients were found eligible for the multimodal rehabilitation program. The main reasons for exclusion were improper referral, high levels of distress unrelated to the illness, or unwillingness to participate in an acceptance-oriented CBT [20]. Twenty-nine patients were enrolled in the proof-of-concept study, of which 25 patients (19 women, 6 men; mean age 51.0 ± 7.1 years), mostly married (80%), and currently not employed (52%) provided baseline data (Fig. 1). Twelve patients (48%) were diagnosed with OA, 13 patients (52%) with an inflammatory rheumatic disease. Disease duration ranged from 2.2 to 13.7 years (median 3.6). The local Medical Ethics Committee decided that their approval was not necessary for this evaluation study. A written informed consent was obtained from all participants.

2.3. Description of the multimodal rehabilitation program

The content and format of the comprehensive multimodal rehabilitation program, and the theoretically and empirical findings that guided the development of the acceptance-oriented CBT have been extensively described [20]. A summary is given here. The 16-week multimodal rehabilitation programme comprised cognitive-behavioral therapy (19.5 h) and physical therapy (18.5 h) group sessions with 5–8 patients alternated with individual treatment sessions of occupational therapy (6 h) and nurse counseling (6 h). The multimodal rehabilitation program supported by a patient handbook included (1) educational and practice sessions led by occupational therapists and rheumatology nurses about disease course, treatment adherence, activity pacing, and ergonomic principles; (2) fitness-, strength-, flexibility-, and joint protection exercises, and relaxation therapy led by physical therapists; and (3) CBT-sessions led by a clinical psychologist and a social worker about acceptance, coping flexibility, behavior change, social skills and assertiveness, and relapse prevention.

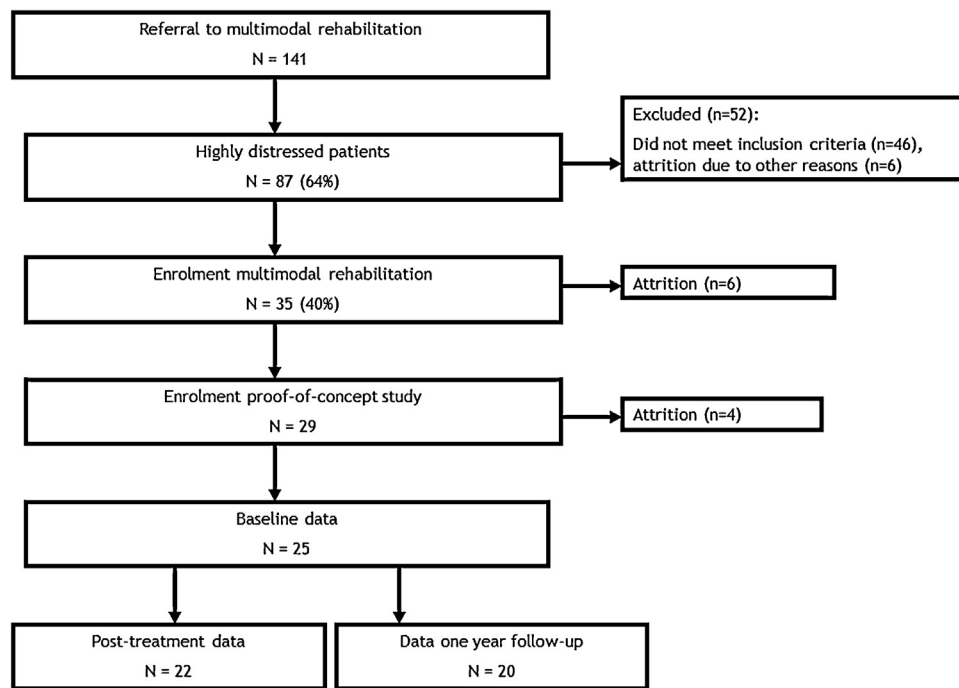


Fig. 1. Flow of participants from screening through study participation.

2.4. Measures

Psychological distress was measured with the depressed mood scale and anxiety scale of the Impact of Rheumatic Diseases on General Health and Lifestyle questionnaire (IRGL) [39]. The 6-item depressed mood scale assesses negative mood states over the previous week on a 5-point Likert scale ranging from 0 (*not at all*) to 4 (*very much*). The 10-item anxiety scale assesses anxiety level in the last month on a 4-point Likert scale ranging from 1 (*almost never*) to 4 (*almost always*). Higher scores represent higher levels of psychological distress. The IRGL has shown good psychometric properties [40,41]. Cut-off scores for high levels of psychological distress have been established [38,39]: depressed mood ≥ 6 and anxiety > 18 or anxiety ≥ 23 and depressed mood > 2 .

Illness acceptance was measured with the 6-item acceptance scale of the Illness Cognition Questionnaire (ICQ) on a 4-point Likert scale ranging from 1 (*not at all*) to 4 (*completely*) [28]. The acceptance scale assesses the tendency to recognize the need to adapt to a chronic illness while perceiving the ability to tolerate and manage its aversive consequences. Higher scores represent higher levels of illness acceptance. The ICQ has good psychometric properties in rheumatic diseases [28].

Coping flexibility was measured with the 13-item Coping Flexibility Questionnaire (COFLEX) on a 4-point Likert Scale ranging from 1 (*seldom or never*) to 4 (*almost always*) [42]. The COFLEX comprises two subscales: versatility (9 items) and reflective coping (4 items). Versatility assesses the ability to flexibly use a variety of coping strategies in accordance with personal goals and changing circumstances. Reflective coping assesses the ability of generating and considering coping options, and appraising the suitability of a coping strategy in a given situation. Higher scores represent higher levels of versatility and reflective coping. Reliability and preliminary validity has been reported to be adequate [42].

Quality of life was measured with the 36-item Short Form Health Survey (SF-36v2) comprising eight scales: physical functioning (PF), role limitations due to physical health problems (RP), bodily pain (BP), general health (GH), vitality (VT), social functioning (SF),

role limitation due to emotional health problems (RE), and mental health (MH) [43]. All scales range from 0 to 100, with a higher score indicating a better perceived health. The reliability, validity, and responsiveness of the SF-36 including the Dutch version are well established [44].

2.5. Statistical analysis

Square root transformed scores of the variables with a skewed distribution were used in analyses (i.e., depressed mood and versatility). Mean and standard deviation (SD) or median and interquartile range (IQR) for continuous variables and percentages for categorical variables were computed to describe the main characteristics of the study sample.

Group *pre-to-post* and *pre-to-12 months follow-up* treatment changes were evaluated by comparing the proportion highly distressed patients at post-treatment to an a priori set success rate and by paired-samples *t*-tests and Cohen's *d* effect sizes [45].

Individual *pre-to-post* changes in the continuous outcome variables depressed mood and anxiety were evaluated combining the reliable change index (RCI) expressing that the change of an individual exceeds the measurement error of the instrument and the clinically significant change (CSC) that defines a clinically meaningful cut-off point expressing whether the patient after treatment ends up in a range indistinguishable from non-distressed patients (normative level) [46]. The standard error of the RCI was calculated using previously established internal consistency coefficients [5]. Normative data for RA patients were used to define clinically meaningful cut-off points [39]. The proportions of patients showing no change, reliable change, reliable and clinically significant change, and deterioration were computed. To examine whether changes in psychological distress were associated with changes in illness acceptance and coping flexibility, Pearson's correlations were calculated between *pre-to-post* baseline-adjusted change scores.

To examine the differences between the study sample and a norm group of RA patients [47] at each assessment point, Cohen's effect sizes (*d*) were computed. These statistics express the

Table 1
Descriptive statistics for psychological distress variables, illness acceptance, coping flexibility, and quality of life at pre-treatment, post-treatment, and 12 months follow-up.

Variables ^{a,c}	Pre-treatment		Post-treatment		p^*	d^b	Follow-up		p^*	d^b
	M	SD	M	SD			M	SD		
Psychological distress										
Depressed mood (range 0–24) ^a	7	3.0	2.2	5.0	0.02	0.68	3.5	4.5	<0.01	0.96
Anxiety (range 10–40) ^c	23.7	4.6	19.9	4.2	<0.01	0.93	20.6	4.2	<0.01	0.86
Acceptance (range 6–24) ^c	10.8	2.8	15.5	3.5	<0.01	1.41	15.1	2.6	<0.01	1.48
Coping flexibility										
Versatility (range 9–36) ^a	22.0	8.0	23.0	4.0	0.29	0.23	22.0	7.5	0.54	0.12
Reflective coping (range 4–16) ^c	9.6	2.0	10.1	1.6	0.25	0.24	9.6	1.7	0.70	–0.12
Quality of Life (range 0–100) ^c										
Physical functioning	47.1	16.3	52.7	17.4	0.08	0.21	50.0	19.9	0.83	0.04
Role-Physical	27.8	15.8	38.4	19.5	0.04	0.45	42.2	16.6	0.01	0.65
Bodily pain	37.0	16.4	46.3	17.2	<0.01	0.46	46.5	21.2	0.06	0.42
General health	38.3	19.9	48.3	21.9	<0.01	0.49	44.4	23.0	0.09	0.23
Vitality	34.0	15.4	45.7	13.7	<0.01	0.71	45.0	15.0	<0.01	0.67
Social functioning	56.5	17.7	63.6	18.1	0.17	0.33	65.0	16.5	0.15	0.38
Role-Emotional	53.3	29.1	63.3	22.8	0.07	0.48	67.1	20.3	0.16	0.51
Mental health	60.8	16.8	71.4	13.1	<0.01	0.76	69.5	11.2	0.03	0.68

^a Variables were transformed (square root) before statistical analysis.

^b d = estimated effect size for Cohen's d paired measurements: $t_c[2(1-r)/n]^{1/2}$, in which $t_c = M_d/(SD_d/n)^{1/2}$ (11).

^c Mean and standard deviation (SD) for normally distributed variables and ^amedian and interquartile range (IQR) for skewed variables. The Ns for pre-treatment, post-treatment, and 12 months follow-up were 25, 22, and 20, respectively.

^{*} Paired t -tests from *pre-to-post* and *pre-to-12 months follow-up* assessment.

deviation from the norm group in standard deviation units [48]. Effect size values between 0.2 and 0.5, between 0.5 and 0.8, and greater than 0.80 reflect small, medium, and large deviations, respectively. All tests were 2-sided; p -values <0.05 were considered significant.

3. Results

3.1. Primary outcome: psychological distress

Mean, standard deviation, and effect sizes of depressed mood, anxiety, illness acceptance, coping flexibility, and quality of life at pre-, post- and 12 months follow-up are displayed in Table 1. The majority of the patients were below the cut-off for high levels of psychological distress at post-treatment (16 of 22; nine patients with inflammatory rheumatic diseases and seven patients with OA) and 12 months follow-up (15 of 20: nine patients with inflammatory rheumatic diseases and six with OA). From *pre-to-post* treatment and *pre-to-12 months follow-up*, patients showed medium ($d = 0.68$) to large ($d = 0.96$) improvements in psychological distress.

Fig. 2a and 2b show the individual *pre-to-post* treatment scores on depressed mood and anxiety. For depressed mood, nine patients demonstrated a reliable improvement to the normative level (four with inflammatory rheumatic diseases and five with OA), 11 patients did not reliably change, one patient showed a reliable deterioration, and one patient reliably deteriorated ending up outside the normative level. For anxiety, 12 patients demonstrated a reliable improvement of whom eight (four with inflammatory rheumatic diseases and four with OA) to the normative level, eight patients did not reliably change, one patient showed reliable deterioration, and one patient reliably deteriorated ending up outside the normative level.

3.2. Secondary outcomes: quality of life, acceptance and coping flexibility

The effect sizes on the SF-36 subscales reflected a small to large deviation from the norm [47] at pre-treatment (mean $d = -0.52$, range -0.91 to -0.03). At post-treatment and 12 months follow-up trivial to small deviations (respectively mean $d = -0.15$, range -0.33 to 0.18 and mean $d = -0.17$, range -0.37 to 0.08) from the norm on the SF-36 subscales were observed.

After treatment, patients showed medium to large improvements in illness acceptance ($d = 1.41$), and small ($d > 0.20$) to medium improvements ($d \geq 0.45$) in the SF-36 subscales role physical, bodily pain, general health, vitality, and mental health. Small, non-significant improvements were found for coping flexibility, and the SF-36 subscales physical functioning, social functioning, and role emotional. From *pre-to-12 months follow-up*, patients showed large improvements in illness acceptance ($d = 1.48$) and medium improvements ($d \geq 0.65$) in the SF-36 subscales role physical, vitality, and mental health. No significant changes in coping flexibility and the SF-36 subscales physical functioning, bodily pain, general health, social functioning, and role emotional were found.

3.3. Association between illness acceptance and coping flexibility and changes in psychological distress

Pre-to-post changes in psychological distress and coping flexibility were correlated. Increases of versatility ($r = -0.42$, $p = 0.04$) and reflective coping ($r = -0.51$, $p = 0.02$) correlated with a decrease of depressed mood. Increases of acceptance ($r = -0.57$, $p < 0.01$) and versatility ($r = -0.45$, $p = 0.04$) correlated with a decrease of anxiety.

4. Discussion and conclusion

4.1. Discussion

Our study is one of the first suggesting the potential effectiveness of an acceptance-oriented CBT embedded in a multimodal rehabilitation program for highly distressed patients with rheumatic diseases. Three out of four highly distressed patients with rheumatic diseases were categorized as non-distressed following the rehabilitation program, and also quality of life and illness acceptance beneficially changed after treatment and remained higher at 12 months follow-up. Increased illness acceptance and coping flexibility were associated with decreased psychological distress.

A core element of our CBT was to increase illness acceptance to facilitate adaptation to the disease and to improve psychological well-being. Nowadays, acceptance is considered a valuable concept in understanding adjustment to chronic pain conditions.

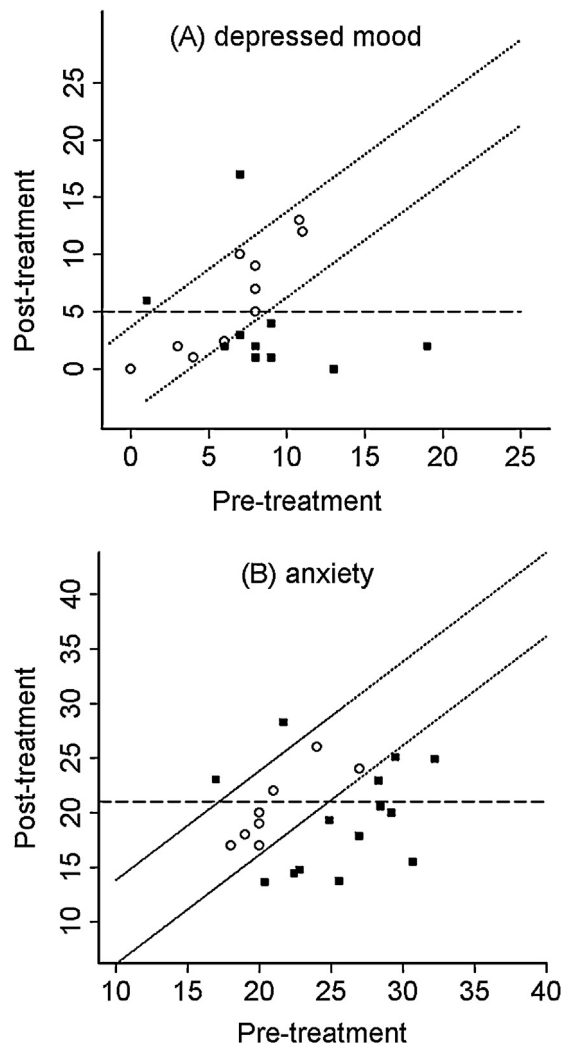


Fig. 2. Pre-to-post treatment scores on (A) depressed mood and (B) anxiety of 22 highly distressed patients. Note. Scores on the main diagonal between the parallel lines (expressing 95% confidence intervals) indicate no reliable *pre-to-post* treatment change. Scores outside this confidence interval reflect a reliable change. The dashed horizontal line represents the normative cut-off scores on depressed mood and anxiety after treatment. Solid squares represent patients whose *pre-to-post* treatment change is greater than the measurement error of the scale (i.e., reliable change); hollow circles represent patients whose *pre-to-post* treatment changes are less than the measurement error of the scale. The x-axis and y-axis display the theoretical range of the measure.

Acceptance represents acknowledgment of pain and the chronicity of the condition and a willingness to engage in valued life activities despite pain. Recent reviews concluded that acceptance-based approaches such as mindfulness-based stress reduction therapy and ACT are effective for improving psychological distress, pain, and coping and can be a valuable addition to traditional CBT [49,50]. Evaluations in inflammatory rheumatic diseases, however, are scarce. One study in which patients with RA were randomly assigned to CBT, mindfulness-based therapy or an educational control group found favorable effect of the mindfulness-based therapy in coping efficacy and pain management in patients with recurrent depression [51]. Another randomized clinical trial examined the effects of a mindfulness-based group intervention in adults with inflammatory rheumatic diseases [52]. Significant improvement was found in psychological distress, self-efficacy, emotion-focused coping, fatigue, self-care ability, and overall well-being at post-treatment

and these changes were maintained at 12 months follow-up. The findings in our open trial are in line with the findings in these controlled studies; illness acceptance, role physical, vitality, and mental health improved significantly at post-treatment and maintained at 12 months follow-up. Compared to the common levels of patients with rheumatoid arthritis [47], the health status of our patients was poor before treatment, but hardly deviating following treatment and at 12 months follow-up. Our findings in patients with rheumatic diseases tentatively support controlled studies suggesting the validity of acceptance as a promising adjustment factor.

Another core element of our acceptance-oriented CBT was coping flexibility. Grounded in the dual-process coping model, a guiding principle of our acceptance-oriented CBT was that the restructuring of cognitions and behavior can help to deal with situations that can be changed, while acceptance of the inevitable consequences of the disease should be part of patients' coping repertoire to deal with situations that cannot be changed. We translated these guiding principles into cognitive-behavioral coping competencies to be flexibly used depending on the demands of the situation. Coping flexibility, however, did not improve after treatment. Different explanations could account for this result; the treatment was not effective in enhancing coping flexibility, a lack of responsiveness of the measure used to assess coping flexibility or a lack of power because of the small sample size. The association between increased coping flexibility and decreased depressed mood during treatment is in agreement with a study among college students [53]. However, our finding should be interpreted with caution since coping flexibility did not improve after treatment and the observation of a correlation between change in psychological distress and coping flexibility does not permit causal interpretation.

Evaluation of a complex multimodal intervention in clinical practice is challenging. We defined a priori a responder criterion on the primary outcome, i.e., psychological distress, as an 'evaluation standard' for success (or failure) of our multimodal rehabilitation program and we used the RCI/CSC method for an in-depth analysis of the results in individual patients. In this one-group pre-post test effectiveness evaluation, a large proportion of the patients met our predefined responder criterion and was classified as non-distressed after treatment and at 12 months follow-up. Using individual statistics, reliable improvements to common levels for rheumatic patients were observed for almost half of the highly distressed patients. This is in line with interventions in severely disabled chronic pain patients [54]. Similar to other observations [55], about one out of every five patients deteriorated during the course of treatment. On average, results suggest that a beneficial change is possible to achieve in a considerable proportion of rheumatic patients who despite optimal medical treatment are highly distressed, but results of a controlled study have to be awaited before drawing final conclusions.

The obvious targets of conventional treatment of rheumatic diseases are the underlying disease process and primary symptoms. Attention to the psychological status and psychosocial factors that may impact on the disease is much more haphazard [56]. Paradoxically, the increased emphasis on pharmacological treatment may mask the treatment needs of some of the most severely affected by the disease [57]. Patients who were rated by their rheumatologist as having more impaired functional status were more than twice as likely to be highly distressed [58]. Identifying and treating psychological distress is an important facet of the long-term care of patients with rheumatic diseases [59,60]. Regular mood assessment by the rheumatology clinical staff may serve to improve awareness

and early identification, and thus timely identification and treatment of anxiety and depressive mood [5].

Inherent limitations of this proof-of-concept study are the small sample size, the lack of a control group, and the reliance on a normative criterion derived from RA patients, whereas our sample consisted of mixed rheumatic patients. Thus, although the data are in support of *effectiveness* of the addition of acceptance-oriented CBT, the data do neither prove *efficacy* nor provide an indication that the addition of the acceptance-oriented CBT component *caused* the improvement. By selecting a highly distressed patient group, the observed improvements in psychological health status could also reflect regression-to-the-mean or the effect of a single component of the program. Moreover, the findings do not generalize to patients that are below the distress cut-off used in the current study. The observation that also one in five patients deteriorated during the course of treatment makes more thorough research obligatory. Furthermore, the interpretation and generalizability of our study findings might be limited by the setting (i.e., a specialized rheumatology clinic) and the inclusion and exclusion criteria of the multimodal rehabilitation program. Thus, a selection bias cannot be ruled out. To test whether acceptance and coping flexibility are the crucial therapeutic mechanism of change, future evaluation studies in a large sample should use mediation analyses. Next to the evaluation of mono-therapies, randomized controlled trials of multimodal interventions in routine clinical settings is urgently needed. The use of individualized outcome evaluations is a strength of our study.

4.2. Conclusion

Our observational proof-of-concept study suggests that an acceptance-oriented cognitive-behavioral therapy embedded in a multimodal rehabilitation program might be beneficial for patients with chronic rheumatic diseases who are highly distressed despite optimal medical treatment. The psychological health status of the patients improved significantly after treatment and was maintained at 12 months follow-up. Moreover, a decrease in psychological distress was associated with an increase in illness acceptance and coping flexibility after treatment, tentatively supporting the dual-process coping model.

4.3. Practice implications

In routine rheumatology practice, patients with impaired physical and psychosocial functioning despite adequate medical treatment pose a great challenge. The rehabilitation outcome of this specific group may be improved by screening and selecting highly distressed patients based on cut-off scores for (sub)clinical levels of depression and anxiety and offering these patients an acceptance-oriented CBT embedded in a multimodal rehabilitation program. A randomized clinical trial (RCT) is needed to confirm or refute the added value of an acceptance-based cognitive-behavioral therapy for highly distressed patients in rehabilitation. For instance, a RCT that examines the comparative effectiveness of an acceptance-based intervention and a traditional CBT intervention in patients with rheumatic diseases could be conducted.

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I confirm all patient/personal identifiers have been removed or disguised so the patient/person(s) described are not identifiable and cannot be identified through details of the story.

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