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# The longitudinal relation between patterns of goal management and psychological health in people with arthritis: The need for adaptive flexibility

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**Objectives.** Due to their disease, patients with polyarthritis face the task of reconciling their threatened personal goals with their capabilities. Previous cross-sectional research on patients with chronic disease related higher levels of goal management strategies to lower levels of distress and higher levels of well-being. This study was the first to focus longitudinally on goal management patterns that combined strategies originating from different goal management theories. Our first study objective was to identify patterns that consisted of various strategies of goal management among patients with polyarthritis. Subsequently, the cross-sectional and longitudinal relationships between these patterns and the psychological health of the patients were studied.

**Methods.** A longitudinal questionnaire study with three measurements of goal management and psychological health was conducted among 331 patients with polyarthritis. Stability of goal management over time was analysed with ANOVAs. Patterns were identified using cluster analysis at baseline, based on the following strategies: Goal maintenance, goal adjustment, goal disengagement, and goal reengagement. Longitudinal relationships between the patterns and psychological health (specifically: Depression, anxiety, purpose in life, positive affect, and social participation) were analysed using a generalized estimating equations analysis.

**Results.** Three goal management patterns were found: 'Moderate engagement', 'Broad goal management repertoire', and 'Holding on'. Patients with the 'Broad goal management repertoire' pattern had the highest level of psychological health. The 'Holding on' pattern was identified as the most unfavourable in terms of psychological health. Over time, stable differences in levels of psychological health between the patterns were found.

**Conclusions.** This study was the first to reveal patterns of several goal management strategies and their longitudinal relationship to psychological health. Psychosocial support for arthritis patients with lower psychological health should focus on helping patients to become familiar with a broad range of goal management strategies when dealing with threatened goals.

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**Statement of contribution**
*What is already known on this subject?*
- Polyarthritis is a collective term for a variety of disorders associated with autoimmune pathologies that may affect all aspects of a person's physical, psychological, and social functioning. Patients often experience difficulties in maintaining and achieving goals in several domains of life due to disease symptoms.
- The process of emotional adaptation to polyarthritis is characterized by searching equilibrium between desires and constraints and reacting constructive to stressors. Goal management strategies are ways to minimize the perceived disparity between the actual and the preferred situation with regard to personal goals and are applied both consciously and unconsciously.
- Cross-sectional, higher levels of goal management strategies have been related to lower levels of distress and higher levels of well-being both in patients with polyarthritis and in other patient groups.

*What does this study add?*
- Contributes to our understanding of how combinations of goal management strategies relate to psychological health.
- Identifies patterns of goal management that are longitudinally related to psychological health.
- Provides clear guidance for improving psychological health of people with polyarthritis.

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Polyarthritis is a collective term for a variety of disorders associated with autoimmune pathologies including rheumatoid arthritis (RA), ankylosing spondylitis, and psoriatic arthritis. The chronic conditions are characterized by systemic inflammation, swelling, disability, chronic pain, and fatigue that affect an individual's life on all fronts. Individual prognosis is unpredictable (Hyphantis *et al.*, 2006), and characteristics of many rheumatic diseases are unpredictable flares and/or periods of worsening disease activity (Bingham, Alten, & de Wit, 2012). These diseases may affect all aspects of a patient's physical, psychological, and social functioning (Evers, Kraaimaat, Geenen, Jacobs, & Bijlsma, 2002). In addition, patients often face difficulties with attaining and maintaining goals in several domains of life (Lempp, Scott, & Kingsley, 2006; Mancuso, Paget, & Charlson, 2000).

The everyday management of chronic diseases occurs mostly outside the health care system and becomes an extensive responsibility when people have to balance conflicting roles and tasks (Newman, Steed, & Mulligan, 2004; Wagner *et al.*, 2001). The psychological component of this adjustment process to the disease is described by De Ridder, Geenen, Kuijer, and van Middendorp (2008) as 'the healthy rebalancing [of patients' lives] to their new circumstances' (p. 246). Often people with chronic illness need to find a balance between their desires and constraints (Boerner & Jopp, 2007; Moss-Morris, 2013).

Pursuing goals is important for identity, purpose in life, satisfaction, and well-being and can give structure to one's life (Brandtstädter & Rothermund, 2002; Scheier *et al.*, 2006; Wrosch, Scheier, Carver, & Schulz, 2003). However, the positive influence of striving for goals to achieve well-being can become negative when goals become unattainable or no progress is made towards the desired goal (Carver & Scheier, 1990; Pomerantz, Saxon, & Oishi, 2000). When the attainment of cherished goals is threatened, the focus shifts from striving towards goals to trying to sustain what is achievable. This focus can continue to shift towards the scaling down of unachievable goals and even to the disengagement of goals that are perceived as unattainable (Dunne, Wrosch, & Miller, 2011; Timmer, Bode, & Dittmann-Kohli, 2003). Goal management strategies refer to the ways patients minimize

the disparity they perceive between their actual and preferred situation with regard to their personal goals.

Circumstances and the experienced level of hindrance towards a goal determine how applicable a goal management strategy is. The Integrated Model of Goal Management is a comprehensive model of goal management which combines two established models (Arends, Bode, Taal, & Van de Laar, 2013b). This working model, which proposes four goal management strategies, was based on the understanding that the derived strategies were from two models that appeared to be partly complementary. The two models combined in this previous study were the dual-process model of assimilative and accommodative coping (Brandtstädter, 2009; Brandtstädter & Rothermund, 2002) and the goal adjustment model (Wrosch, Scheier, Miller, Schulz, & Carver, 2003). While the dual-process model is comprehensive in itself, its operationalization in two continua makes it impossible to distinguish between lower level goal competencies or strategies. The goal adjustment model, on the other hand, contains two defined lower level strategies applicable when a goal is no longer available, but neglects the preceding processes. By combining the strategies from the two models, an effort was made to assemble a heuristic model that included the following four goal management strategies. Firstly, assimilation is operational-ized by the *maintenance of goals*, which implies active attempts to alter unsatisfactory life circumstances and situational constraints in accordance with personal preferences. Secondly, accommodation is operationalized by the *adjustment of goals*, which implies a revision of self-evaluative standards and personal goals in accordance with perceived deficits and losses, thereby adjusting goals to the personal bounds of what remains possible. The third strategy of *goal disengagement* is theorized to be one facet of the broader strategy towards goal adjustment, as well as the ultimate form of adjusting goals (Arends *et al.*, 2013b). Goal disengagement implies the withdrawing of effort and commitment from a goal that is perceived as no longer attainable. Finally, *goal reengagement* implies identifying and then committing to and starting the pursuit of alternative goals.

In this study, possessing multiple goal management competencies was hypothesized to be beneficial for psychological health (PH). Therefore, our first aim was to identify patterns of goal management among patients with polyarthritis. We also hypothesized that patients with several goal management competencies at their disposal might react in a flexible way to difficulties they encountered in goal attainment (Vriezekolk, van Lankveld, Geenen, & van den Ende, 2011). Past research has shown that higher levels of competence in individual goal management strategies relate to higher levels of PH in patients with polyarthritis (Arends *et al.*, 2013b) and in other patient groups, such as those with vision loss, limb amputation, myocardial infarction, chronic pain, and cancer as well (Boerner, 2004; Coffey, Gallagher, Desmond, & Ryall, 2014; Duke, Leventhal, Brownlee, & Leventhal, 2002; Garnefski *et al.*, 2009; Schmitz, Saile, & Nilges, 1996; Zhu *et al.*, 2014). However, no studies are known to have examined patterns of goal management in patients with a chronic disease. Also, there are only cross-sectional studies on the relationship between goal management and PH in patients with polyarthritis, and very little research exists on the relationship between goal management and PH over a longer time period in patients living with a chronic disease. Four longitudinal studies among diverse patient groups have found higher levels of various goal management strategies to be related to a higher quality of life and less depressive symptoms (Coffey, Gallagher, Desmond, Ryall, & Wegener, 2014; Darlington *et al.*, 2007; Hall, Chipperfield, Heckhausen, & Perry, 2010; Thompson, Woodward, & Stanton, 2011). These findings suggest that longitudinally a higher competence in multiple goal management strategies can promote PH.

Psychological health, also described as adaptation to a chronic disease, includes various concepts, such as low levels of depression and anxiety and high levels of purpose in life, positive affect, and satisfaction with participation (Moss-Morris, 2013). These five concepts have been studied before in relation to patients with arthritis and were chosen to give a multidimensional display of PH in the present study. Of particular importance to this study is that research exploring these concepts has shown that heterogeneity exists between individuals and across the course of the disease (Stanton, Revenson, & Tennen, 2007). Depression and anxiety are well-studied components of psychological distress and affect a significant number of patients with arthritis (Dickens, McGowan, Clark-Carter, & Creed, 2002; Morris, Yelin, Panopalis, Julian, & Katz, 2011). Findings indicate individual variability in levels of depressive symptoms over time in patients with polyarthritis (Hawley & Wolfe, 1988; Morris *et al.*, 2011; Ødegård, Finset, Mowinckel, Kvien, & Uhlig, 2007). Anxiety has received increasing attention in research during the last decade (Bode & Taal, 2015; Geenen, Newman, Bossema, Vriezekolk, & Boelen, 2012), and this focus seems appropriate given that research indicates 20–30% of RA patients suffer from increased levels of anxiety (Ødegård *et al.*, 2007). In addition to the absence of psychological distress, the presence of well-being is part of PH of patients with arthritis (Arends *et al.*, 2013b; De Ridder *et al.*, 2008). Along these lines, purpose in life – the endeavour to find meaning in efforts and challenges – was found to add to the quality of life in patients with arthritis (Verduin *et al.*, 2008). Positive emotions can reduce the negative influence of pain on well-being and even help to prevent clinical depression (Folkman, 2008; Folkman & Moskowitz, 2000; Zautra, Johnson, & Davis, 2005). In addition, the level of a patient's participation in society is often negatively affected by polyarthritis, whereas social limitations are related to psychological distress (Geuskens, Burdorf, & Hazes, 2007; Reinhardt & Stucki, 2007; Shih, Hootman, Strine, Chapman, & Brady, 2006).

The second aim of this study was to relate the patterns of goal management to PH in patients with polyarthritis, both cross-sectional and longitudinal. Based on an earlier study (Arends *et al.*, 2013b), it was hypothesized that a pattern that includes high levels of goal adjustment, but also high or moderate levels of goal maintenance, goal disengagement and goal reengagement is beneficial for PH. Consequently, less effective patterns of goal management could put individuals at risk of poor PH. We assumed that less effective patterns of goal management would involve the absence of high levels of multiple strategies or consist of a predominant use of only one strategy.

## Method

A questionnaire study with three measurement points for goal management strategies and PH was employed 6 months apart. A study describing the data and analysis of the first measurement point has been published elsewhere (Arends *et al.*, 2013b). Ethical approval for the study was obtained from the internal review board of the Faculty of Behavioral Sciences at the University of Twente in the Netherlands. All participants gave written informed consent.

### Sample

Participants were randomly selected from the electronic diagnosis registration system from a rheumatology outpatient clinic. The following inclusion criteria were applied to select eligible patients: (1) diagnosis of polyarthritis and (2) receiving treatment for

polyarthritis. Next, a rheumatologist checked the individual charts for the additional inclusion criteria: (3) 18 years or older and (4) sufficient proficiency in Dutch to fill in the questionnaire, either autonomously or with the help of a relative. Of the 803 initial patients, 639 met all inclusion criteria and received an invitation letter, informed consent form, and the first questionnaire. Informed consent was returned by 331 patients (52%), who were then included in the study.

### Instruments

A Dutch validated version of the Hospital Anxiety and Depression Scale (Spinhoven *et al.*, 1997; Zigmond & Snaith, 1983) was used to measure depressive and anxiety symptoms. Higher scores indicate more depressive/anxiety symptoms (range of both subscales 0–21). Internal consistency at baseline for depression was $\alpha$ = .80 and for anxiety $\alpha$ = .83. The Purpose In Life Scale (PIL; Ryff, 1989; Ryff & Keyes, 1995) was used to measure the extent to which participants experience a meaningful life. One question about everyday purpose in life was added to the PIL: 'Doing the things I do every day is a source of deep pleasure and satisfaction'. Higher scores indicate more purpose in life (range 6–30). Internal consistency at baseline was $\alpha$ = .82. The positive subscale of the Positive and Negative Affect Schedule (Peeters, Ponds, & Vermeeren, 1996; Watson, Clark, & Tellegen, 1988) was used for the measurement of positive affect. Higher scores indicate more positive affect in the past week (range 10–50). Internal consistency at baseline was $\alpha$ = .92. The subscales family role, autonomy outdoors, and social relations of the Impact on Participation and Autonomy (Cardol, De Haan, De Jong, Van den Bos, & De Groot, 2001) were used to assess participants' social participation. Higher scores indicate more satisfaction with social participation (range 0–4). Internal consistency in this study was at baseline $\alpha$ = .94.

Maintenance of goals and adjustment of goals were measured using two scales: Tenacious Goal Pursuit and Flexible Goal Adjustment (Brandtstädter & Renner, 1990). High scores on these two scales indicate a tendency to maintain goals (Tenacious Goal Pursuit example item: 'When faced with difficulties, I usually double my efforts'), and a tendecy to adjust goals (Flexible Goal Adjustment example item: 'I adapt quite easily to changes in plans or circumstances'). Internal consistency at baseline was $\alpha$ = .73 for goal maintenance (range 15–75) and $\alpha$ = .81 for goal adjustment (range 15–75). Cronbach's $\alpha$ over time was .86 for goal maintenance and .88 for goal adjustment. For this study, an original Dutch translation was derived using both the original German scales and existing English translations. Back-and-forward translations were made by native speakers. This procedure was also used to translate the Goal Adjustment Scale discussed below.

Goal disengagement and goal reengagement were measured with the Goal Adjustment Scale (Wrosch, Scheier, Miller, *et al.*, 2003). The two subscales measure how respondents usually react if they have to stop pursuing an important goal (e.g., 'If I have to stop pursuing an important goal in my life... it's easy for me to reduce my effort towards a goal./... I seek other meaningful goals'). Higher scores indicate a tendency to disengage from unattainable goals (goal disengagement, range 4–20) and a tendency to reengage with new goals (goal reengagement, range 6–30). Internal consistency at baseline was $\alpha$ = .51 and $\alpha$ = .88, respectively. Over time, Cronbach's alpha was .76 for goal disengagement and .74 for goal reengagement.

Respondents were asked to indicate the amount of pain (1-item numerical scale: No pain at all [0]–unbearable pain [10]) and the severity of fatigue (100 mm visual analogue scale: No fatigue [0]–completely exhausted [100]) in the past week. For comorbidity, a checklist with 15 categories of conditions was used and the number of comorbidities was

summed up (range 0–15). Functional limitations were measured with the Health Assessment Questionnaire-Disability Index (HAQ-DI; Fries, Spitz, Kraines, & Holman, 1980; Siegert, Vleming, Van-Denbroucke, & Cats, 1984), which was developed to measure basic physical function among persons with arthritis, such as mobility and self-care. Higher scores indicate the worse basic physical functioning (range 0–3). Internal consistency at baseline was $\alpha$ = .92.

## Data analysis

Data were analysed using version 18 of the Statistical Package for the Social Sciences. Descriptive statistics were calculated for all study variables. Univariate repeated-measures ANOVAs were used to analyse the stability of the four goal management strategies (goal maintenance, goal adjustment, goal disengagement, and goal reengagement) over time. In the case of significant sphericity, the Greenhouse–Geisser statistic was reported. Repeated contrasts were used to test the significance of changes between measurement points. Pearson correlations were given for relations between goal management variables.

### Cluster analysis

Cluster analysis was used to identify distinct subgroups based on the similarity of their pattern of goal management variables at baseline. Goal management variables were standardized prior to their cluster analyses (Hair & Black, 2000). Firstly, Ward's hierarchical cluster analysis was used to identify cluster centroids and identify the best possible number of clusters; then, the squared Euclidean distance was used as a similarity measure. To identify the number of clusters for the $K$-means analysis, the dendrogram was then searched for an inconsistent jump in the similarity measure. A 3-cluster solution was selected based on theoretical relevance, interpretability, cluster size, and an assessment of cluster differences with respect to concurrently measured variables (Aldenderfer & Blashfield, 1984). Subsequently, a $K$-means analysis was conducted.

To validate the obtained cluster solution through replication, the study sample was randomly split into two groups, and each group was analysed using identical clustering procedures. To assess the stability of the 3-cluster solution over time, cluster analyses were repeated on the second and third measurement points. Then, to determine whether the cluster solutions in the three waves matched, clustering factors and outcome variables were compared. The intraclass coefficient (ICC) was used to evaluate the stability of individual cluster membership over time. Subsequently, descriptive statistics were computed for the three clusters on the first measurement point. Using the clusters formed with baseline data, descriptive statistics were also computed for the three clusters on the second and third measurement points. Multivariate and univariate ANOVAs with Bonferroni-adjusted *post-hoc* comparisons were used to test group differences in clustering factors. Furthermore, analyses of cluster differences in concurrently measured demographic variables, disease-related variables and PH outcome variables were conducted, using ANOVAs and chi-square test. In case of non-normality of variances, Welch's F was used for the univariate approach.

### Generalized estimating equations

To analyse the longitudinal relationship between patterns (clusters) of goal management, on the one hand, and PH outcomes on the other, generalized estimating equations (GEE)

analyses were used. To adjust for the repeated measurements within a person, a working correlation structure was specified *a priori* (Twisk, 2003). The exchangeable working correlation structure was deemed most appropriate. First, to assess their independent contribution to depression, anxiety, purpose in life, positive affect, and participation in separate GEE analyses, patterns of goal management were treated as categorical levels of a fixed variable (with one pattern as the reference group). Baseline demographic variables (sex and age) and disease-related variables (functional limitations, pain, fatigue, and comorbidity) were added into the analyses to control for the variables' contribution. Secondly, to assess a possible linear course over time, time was added as a continuous variable. In addition, interaction terms between time and patterns of goal management were added to assess differences in course over time between the patterns of goal management for PH outcomes (Twisk, 2003). Two patterns were used alternately as the reference group to study differences in course over time between all three patterns (referred to as the interaction effect).

## Results

### Sample characteristics

Table 1 shows the demographic and clinical characteristics of the participants at the respective measurement points. The majority of participants lived with a partner (72.8%), had either no education or up to a secondary education (75.9%), and had no paid job (69.2%). A slight majority of the participants was female (61%). The mean age at baseline was 62.5 years, and mean disease duration was 14.7 years. The most common diagnosis (58% of the sample) was RA.

### Sample attrition

At the first measurement point, 331 participants were included in the study (see Figure 1 for a flow chart that displays participant attrition over the year). At the second measurement point, 290 questionnaires were returned (88%), and at the third measurement point, 262 questionnaires (79%). A total of 255 participants returned questionnaires for all three measurement points. Three participants deceased during the term of the study. Other reasons for dropout were comorbid disease ($n = 4$, e.g., cerebrovascular accident, dementia) and personal circumstances ($n = 2$). However, the reasons for the remaining participants dropping out are unknown ($n = 60$). Analyses of baseline measures comparing participants who dropped out of the study with those who remained revealed no statistically significant differences with respect to demographic characteristics, disease-related variables, and most of the goal management or PH variables. However, participants who dropped out had significantly higher goal disengagement, lower purpose in life and less satisfaction with participation in society than participants who remained in the study. No differences were found in dropout rate between the clusters, $\chi^2(2) = 4.27$, ns.

### Patterns of goal management at baseline

Descriptive statistics for all study variables at the three measurement points are shown in Table 2. The mean levels of goal management mainly remained stable throughout the study. An exception was the strategy of goal maintenance; its mean levels changed

**Table 1.** Characteristics of the participants on T1, T2, and T3 measured at baseline

|  | T1 | T2 | T3 |
|---|---|---|---|
| *Demographic characteristics* | | | |
| Number of participants (%) | 331 (100) | 290 (87.6) | 262 (79.2) |
| Sex, *n* (%) | | | |
| Male | 129 (39.0) | 114 (39.3) | 105 (40.1) |
| Female | 202 (61.0) | 176 (60.7) | 157 (59.9) |
| Age (years), mean (*SD*), range | 62.49 (12.7), 24–91 | 61.7 (12.1), 28–89 | 62.07 (11.7), 32–89 |
| Marital status, *n* (%) | | | |
| Not living with partner | 83 (25.1) | 64 (22.1) | 61 (23.3) |
| Living with partner | 241 (72.8) | 219 (75.5) | 196 (74.8) |
| Missing | 7 (2.1) | 7 (2.4) | 5 (1.9) |
| Educational level, *n* (%)[a] | | | |
| No/Lower | 128 (38.7) | 105 (36.2) | 96 (36.6) |
| Secondary | 123 (37.2) | 108 (37.2) | 96 (36.6) |
| Higher | 72 (21.8) | 69 (23.8) | 64 (24.4) |
| Missing | 8 (2.4) | 8 (2.8) | 6 (2.3) |
| Work status, *n* (%) | | | |
| No paid job | 229 (69.2) | 198 (68.3) | 179 (68.3) |
| Full-time and part-time employment | 96 (29) | 86 (29.7) | 79 (30.2) |
| Missing | 6 (1.8) | 6 (2.1) | 4 (1.5) |
| *Disease characteristics* | | | |
| Diagnosis, *n* (%) | | | |
| Rheumatoid arthritis | 192 (58.0) | 170 (58.6) | 159 (60.7) |
| Gout and other crystal diseases | 34 (10.3) | 27 (9.3) | 24 (9.2) |
| Polymyalgia & Temporal Arteritis | 33 (10.0) | 27 (9.3) | 24 (9.2) |
| Spondyloarthropathy | 25 (7.6) | 24 (8.3) | 20 (7.6) |
| SLE and other systemic diseases | 20 (6.0) | 17 (5.9) | 14 (5.3) |
| Other/non-classifiable | 27 (8.2) | 25 (8.6) | 21 (8.0) |
| Disease duration (years), mean (*SD*), range | 14.67 (12.3), 1–71 | 14.72 (12.3), 1–71 | 14.90 (12.2), 1–71 |

*Notes.* T1 = first measurement; T2 = second measurement; T3 = third measurement.
[a]No/Lower: No education, primary school, or lower vocational education; Secondary: High school and middle vocational education; Higher: High vocational education and university.

significantly over time, $F(2, 486) = 5.07$, $p = .007$. Contrasts showed a significant decrease in goal maintenance between the first and second measurement point, T1 mean: 46.93, T2 mean: 46.05, $F(1, 243) = 8.11$, $p = .005$. Levels of goal adjustment did not change over time, $F(2, 486) = 0.06$, ns, nor did levels of goal disengagement, $F(1.89, 454.06) = 0.67$, ns, or levels of goal reengagement, $F(2, 480) = 0.28$, ns. Given the relative stability of the goal management variables over time, the baseline values were used for the identification of patterns. The correlation of goal maintenance with goal adjustment was $r = .14$, with goal disengagement $r = .32$, and with goal reengagement $r = −.00$. The following correlations were found: Goal adjustment with goal disengagement was $r = .32$, goal adjustment with goal reengagement $r = .43$, and goal disengagement related with goal reengagement $r = .30$.
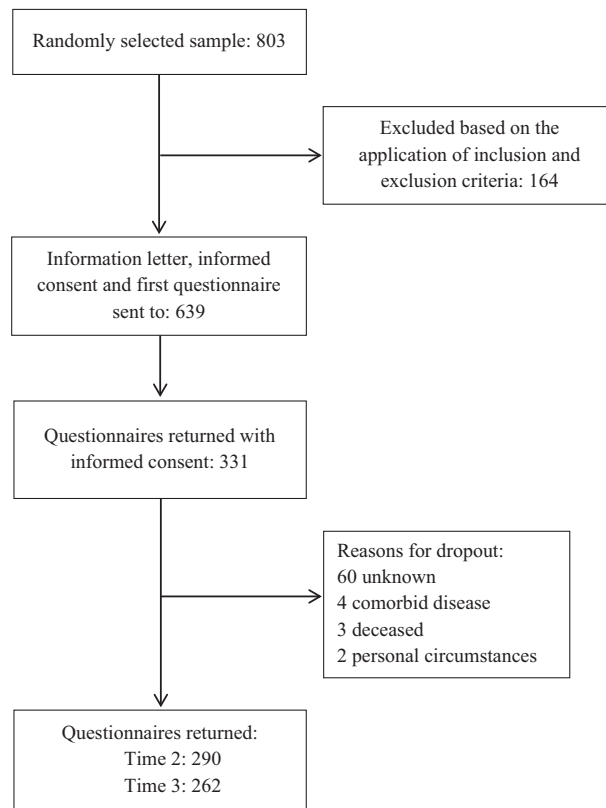
**Figure 1.** Flow chart of participants' attrition during 1 year.

Results of the cluster analysis are presented in Table 3. At baseline, 319 participants had the required data for the cluster analysis. Three distinctive patterns of goal management were identified. Individuals in Cluster 1 ('Moderate engagement') comprised 44.20% of the sample. In this cluster, a low level of goal maintenance coincided with the average reengagement of goals, slightly lower than average goal adjustment and high goal disengagement. Cluster 2 participants ('Broad goal management repertoire') represented 34.48% of the sample. In this cluster, high scores on goal maintenance, goal adjustment, and goal reengagement were accompanied with an average level of goal disengagement. Cluster 3 ('Holding on') constituted 21.32% of the sample. In the third cluster, high goal maintenance was accompanied by low scores on the other three strategies: Goal adjustment, goal disengagement, and goal reengagement. The split-half replication led to an identical number of clusters with essentially identical configurations, thus confirming the 3-cluster solution (cluster 1: $n = 79$ and $n = 70$; cluster 2: $n = 64$ and $n = 49$; and cluster 3: $n = 25$ and $n = 32$).

As indicated at Time 1, analyses suggested that three clusters were also a good solution for Time 2 and Time 3. Similarly, these three clusters differed in the level of goal management strategies. Noteworthy was the fact that identical patterns to those found at Time 1 were not reproduced, especially not at Time 3. The ICC between the repeated cluster analysis on the first, second, and third measurement points was .54 (95% CI 0.43–0.63; df = 232, 464; $p < .001$). Additional analyses using $3 \times 3$ contingency tables (not shown) revealed that from Time 1 to Time 2, 60–70% maintained cluster membership to

**Table 2.** Means and standard deviations of all study variables and number of respondents on the three measurements

| | n | | | First measurement | | Second measurement | | Third measurement | |
|---|---|---|---|---|---|---|---|---|---|
| | T1 | T2 | T3 | M | SD | M | SD | M | SD |
| Goal management | | | | | | | | | |
| Goal maintenance | 324 | 284 | 254 | 46.95 | 6.23 | 46.05 | 6.21 | 46.10 | 6.27 |
| Goal adjustment | 325 | 285 | 253 | 51.81 | 6.67 | 51.67 | 6.13 | 51.60 | 6.44 |
| Goal disengagement | 323 | 284 | 255 | 11.63 | 2.28 | 11.63 | 2.32 | 11.67 | 2.37 |
| Goal reengagement | 324 | 283 | 255 | 21.26 | 3.62 | 21.72 | 3.30 | 21.56 | 3.38 |
| Psychological health | | | | | | | | | |
| Depression | 328 | 286 | 253 | 4.75 | 3.55 | 4.74 | 3.59 | 4.49 | 3.52 |
| Anxiety | 328 | 287 | 253 | 5.31 | 3.73 | 5.32 | 3.59 | 5.05 | 3.61 |
| Purpose in life | 324 | 286 | 257 | 21.81 | 3.81 | 21.78 | 3.57 | 21.69 | 3.44 |
| Positive affect | 328 | 286 | 254 | 34.17 | 7.04 | 34.63 | 6.70 | 34.56 | 6.79 |
| Participation | 326 | 284 | 259 | 2.67 | 0.66 | 2.64 | 0.64 | 2.68 | 0.63 |
| Disease-related | | | | | | | | | |
| Functional limitations | 329 | 290 | 262 | 0.98 | 0.76 | 0.94 | 0.74 | 0.97 | 0.73 |
| Pain | 322 | 286 | 255 | 4.12 | 2.47 | 4.01 | 2.38 | 4.11 | 2.38 |
| Fatigue | 322 | 274 | 249 | 42.17 | 26.28 | 43.06 | 27.14 | 43.25 | 25.91 |
| Comorbidity | 331 | NA | 262 | 1.49 | 1.52 | NA | NA | 1.24 | 1.50 |

*Note. n* = Number of respondents; T1 = first measurement; T2 = second measurement; T3 = third measurement; *M* = mean; *SD* = standard deviation; NA = not applicable.

the same cluster. From Time 2 to Time 3, 55–65% stayed in the same cluster. However, the clusters at Time 2 and Time 3 were not identical in content (i.e., levels of goal management and outcome variables) to the clusters at Time 1, so little can be said about the stability of individuals in clusters over time.

Demographic and disease-related variables differed significantly between the three clusters (Table 3). The 'Moderate engagement' pattern of goal management was more prevalent among older, unemployed, and/or retired participants compared to both other clusters, and mean disease duration in this cluster was longer than for participants in the 'Holding on' cluster. At baseline, the 'Holding on' cluster was significantly associated with higher average fatigue compared to the 'Broad goal management repertoire' cluster. In addition, participants in the 'Holding on' cluster had, on average, more comorbidities compared to both other clusters.

There were significant differences between clusters with respect to the PH outcomes at baseline (Table 3). Participants with a 'Broad goal management repertoire' scored significantly lower on depression and anxiety and higher on purpose in life, positive affect and participation compared to participants in the 'Moderate engagement' and the 'Holding on' clusters. Participants in the 'Moderate engagement' cluster also scored significantly lower on depression and anxiety and had more purpose in life compared to the 'Holding on' cluster.

### The longitudinal relation between goal management patterns and PH

The results of the longitudinal GEE analyses showed relative stability over time in outcomes of PH in the three clusters (mean levels over time are presented in Table 4 and

**Table 3.** Characteristics of all participants on baseline and defined by cluster and tests of cluster differences

| n (%) | Total 331 | Cluster 1 'Moderate engagement' 141 (44.20) | Cluster 2 'Broad goal management repertoire' 110 (34.48) | Cluster 3 'Holding on' 68 (21.32) | Cluster differences F-tests |
|---|---|---|---|---|---|
| Goal management, mean (SD) | | | | | Multivariate $F_{(8, 628)}$ = 96.25*** |
| Goal maintenance | 46.95 (6.23) | 42.11$_a$ (3.45) | 51.55$_b$ (4.76) | 49.23$_c$ (5.18) | $F_{(2, 316)}$ = 159.37*** |
| Goal adjustment | 51.81 (6.67) | 51.51$_a$ (3.76) | 57.45$_b$ (4.22) | 43.22$_c$ (5.26) | $F_{(2, 316)}$ = 233.55*** |
| Goal disengagement | 11.63 (2.28) | 12.43$_a$ (1.78) | 11.65$_b$ (2.56) | 9.95$_c$ (1.80) | $F_{(2, 316)}$ = 32.38*** |
| Goal reengagement | 21.26 (3.62) | 21.35$_a$ (3.08) | 22.88$_b$ (3.35) | 18.5$_c$ (3.60) | $F_{(2, 316)}$ = 36.49*** |
| Demographic and disease-related factors | | | | | Multivariate $F_{(16, 564)}$ = 5.11*** |
| Female, % (n) | 61 (202) | 58.9 (83) | 60.9 (67) | 63.2 (43) | NS |
| Age in years, mean (SD) | 62.49 (12.7) | 65.41$_a$ (11.71) | 59.11$_b$ (11.60) | 60.88$_b$ (14.11) | $F_{(2, 316)}$ = 8.76*** |
| Living with partner, % (n) | 72.8 (241) | 75.2 (106) | 71.8 (79) | 73.5 (50) | NS |
| Full-time/part-time employment, % (n) | 29 (96) | 19.1 (27) | 40.9 (45) | 32.8 (22) | $\chi^2_{(2)}$ = 14.67** |
| Diagnosis rheumatoid arthritis, % (n) | 58 (192) | 61.7 (87) | 56.4 (62) | 57.4 (39) | NS |
| Disease duration in years, mean (SD) | 14.67 (12.3) | 16.26$_a$ (12.89) | 14.81 (12.32) | 10.92$_b$ (12.92) | $F_{(2, 302)}$ = 4.31* |
| Functional limitations, mean (SD) | 0.98 (0.76) | 1.06 (0.71) | 0.84 (0.73) | 1.02 (0.87) | NS |
| Pain rating, mean (SD) | 4.12 (2.47) | 4.21 (2.37) | 3.92 (2.51) | 4.39 (2.52) | NS |
| Fatigue rating, mean (SD) | 42.17 (26.28) | 39.96$_a$ (24.12) | 39.90$_a$ (26.45) | 51.24$_b$ (27.21) | $F_{(2, 308)}$ = 5.39** |
| Comorbidities, mean (SD) | 1.49 (1.52) | 1.40$_a$ (1.44) | 1.35$_a$ (1.57) | 1.96$_b$ (1.54) | $F_{(2, 316)}$ = 3.96* |
| Psychological health, mean (SD) | | | | | Multivariate $F_{(10, 608)}$ = 9.10*** |
| Depression | 4.75 (3.55) | 5.30$_a$ (3.32) | 2.90$_b$ (2.42) | 6.58$_c$ (4.10) | $F_{(2, 314)}$ = 30.73*** |
| Anxiety | 5.31 (3.73) | 5.33$_a$ (3.31) | 4.05$_b$ (2.79) | 7.57$_c$ (4.80) | $F_{(2, 314)}$ = 20.99*** |
| Purpose in life | 21.81 (3.81) | 21.23$_a$ (2.82) | 23.83$_b$ (3.80) | 19.88$_c$ (4.21) | $F_{(2, 316)}$ = 159.37*** |
| Positive affect | 34.17 (7.04) | 32.67$_a$ (6.27) | 37.96$_b$ (5.79) | 31.09$_a$ (7.63) | $F_{(2, 214)}$ = 30.47*** |
| Participation | 2.67 (0.66) | 2.59$_a$ (0.60) | 2.90$_b$ (0.61) | 2.45$_a$ (0.75) | $F_{(2, 313)}$ = 11.7*** |

*Notes.* Means that do not share the same subscript differ $p < .05$ in the Bonferroni-adjusted *post-hoc* comparison.

***$p < .001$; **$p < .01$; *$p < .05$.

**Table 4.** Mean levels of psychological health outcomes over time per cluster

| Measurement point (n) | Cluster 1 'Moderate engagement' | | | Cluster 2 'Broad goal management repertoire' | | | Cluster 3 'Holding on' | | |
|---|---|---|---|---|---|---|---|---|---|
| | T1 (141) | T2 (125) | T3 (111) | T1 (110) | T2 (95) | T3 (89) | T1 (68) | T2 (60) | T3 (56) |
| Depression, mean (SD) | 5.30 (3.32) | 5.09 (3.48) | 4.93 (3.36) | 2.90 (2.42) | 3.12 (2.50) | 3.07 (2.74) | 6.58 (4.10) | 6.57 (4.08) | 6.08 (4.07) |
| Anxiety | 5.33 (3.31) | 5.40 (3.01) | 5.30 (3.01) | 4.05 (2.79) | 4.34 (3.26) | 4.15 (3.20) | 7.57 (4.80) | 6.98 (4.52) | 6.27 (4.75) |
| Purpose in life | 21.23 (2.82) | 21.28 (3.07) | 21.05 (3.08) | 23.83 (3.80) | 23.29 (3.34) | 23.26 (3.26) | 19.88 (4.21) | 20.42 (4.09) | 20.47 (3.67) |
| Positive affect | 32.67 (6.27) | 32.99 (6.13) | 33.22 (5.98) | 37.96 (5.79) | 37.91 (6.12) | 37.56 (6.41) | 31.09 (7.63) | 32.37 (6.38) | 32.45 (7.60) |
| Participation | 2.59 (0.60) | 2.60 (0.57) | 2.68 (0.60) | 2.90 (0.61) | 2.83 (0.60) | 2.83 (0.56) | 2.45 (0.75) | 2.46 (0.77) | 2.46 (0.74) |

the GEE analyses in Table 5). To assess differences in the course of PH between patients with different patterns of goal management over time, the interactions between time and cluster of goal management were studied. Anxiety in the 'Holding on' cluster significantly decreased compared to the 'Moderate engagement' cluster ('Holding on': $\beta = -0.58$, CI $-0.11$, $-0.04$, $p = .03$). For patients with a 'Broad goal management repertoire', their satisfaction with participation in society decreased significantly as compared to patients in the 'Moderate engagement' cluster; however, this was a very weak relationship ('Broad goal management repertoire': $\beta = -0.05$, CI $-0.11$, $-0.00$, $p = .04$). All other relationships between cluster and PH outcomes were stable over time.

There were significant differences between the clusters of goal management concerning mean levels of PH over time (Table 5). Patients in the 'Broad goal management repertoire' cluster had significantly more preferable levels of PH on all five outcomes as compared to both other clusters. Levels of depressive and anxiety symptoms in this cluster remained significantly lower over time compared to the 'Holding on' and the 'Moderate engagement' clusters (compared to the reference group 'Moderate engagement': Depression $\beta = -1.93$, $p < .001$, and anxiety $\beta = -1.19$, $p < .001$). Levels of purpose in life, positive affect, and participation stayed significantly higher over time in the 'Broad goal management repertoire' cluster compared to both other clusters of goal management (PH levels respectively: $\beta = 2.08$, $p < .001$; $\beta = 4.78$, $p < .001$; and $\beta = 0.19$, $p < .01$, as compared to the 'Moderate engagement' cluster). Patients in the 'Holding on' cluster had significantly higher levels of depression and anxiety over time than patients in both other clusters (compared to 'Moderate engagement': Depression $\beta = 0.96$, $p = .04$, and anxiety $\beta = 1.17$, $p = .02$). The 'Moderate engagement' and the 'Holding on' clusters did not differ significantly in levels of purpose in life, positive affect, and participation over time.

## Discussion

The current study was the first to focus on the relationship between specific patterns of goal management and PH in chronically ill patients. Three distinctive patterns of goal management were identified among 331 patients with polyarthritis. Most striking were the differences in levels of PH between the three goal management patterns. At baseline, a broad repertoire of goal management strategies was linked to higher levels of various indicators of PH while the inability to use several strategies was linked to lower levels of PH. The three patterns of goal management were associated with differing and stable levels of PH over time after controlling for demographic and disease-related factors. Patients characterized by the 'Broad goal management repertoire' pattern at baseline had significantly higher levels of PH over time when compared to patients with the other two patterns of goal management. This finding corresponds to the cross-sectional analyses on the baseline data that highlighted the strong relationship between the strategy of goal adjustment and PH (Arends *et al.*, 2013b). In addition to earlier results, these findings also underline the necessity to possess a combination of goal management strategies for a healthy level of PH.

In contrast, patients characterized by the 'Holding on' pattern at baseline were found to have stable lower levels of PH over time. Earlier studies have indicated that striving for meaningful goals is related to better PH (Arends *et al.*, 2013b; Boerner, 2004; Darlington *et al.*, 2007). The present study, however, revealed the added value of combinations of goal management capabilities. When an individual lacks the adaptive flexibility to switch between strategies as needed, holding onto unattainable goals may be a great source of

**Table 5.** Relations between patterns of goal management and psychological health (depression, anxiety, purpose in life, positive affect, and participation) over a 1-year period

| | Depression | | Anxiety | | Purpose in life | | Positive affect | | Participation | |
|---|---|---|---|---|---|---|---|---|---|---|
| | B (95% CI) | p | B (95% CI) | p | B (95% CI) | p | B (95% CI) | p | B (95% CI) | p |
| **Demographic factors** | | | | | | | | | | |
| Sex (female)[a] | −0.59 (−1.17, −0.01) | .05 | −0.35 (−0.96, 0.26) | .26 | 0.16 (−0.48, 0.80) | .63 | −0.25 (−1.43, 0.93) | .68 | 0.08 (−0.02, 0.18) | .13 |
| Age | 0.02 (−0.01, 0.05) | .17 | 0.00 (−0.03, 0.03) | .85 | −0.02 (−0.05, 0.01) | .15 | −0.02 (−0.08, 0.03) | .39 | 0.00 (−0.00, 0.01) | .37 |
| **Disease-related factors** | | | | | | | | | | |
| Functional limitations | 1.12 (0.52, 1.72) | <.001 | 0.56 (−0.10, 1.22) | .10 | −0.68 (−1.37, 0.02) | .06 | −0.82 (−2.06, 0.43) | .20 | −0.36 (−0.46, −0.26) | <.001 |
| Pain | 0.05 (−0.23, 0.13) | .58 | 0.10 (−0.09, 0.28) | .30 | 0.10 (−0.16, 0.37) | .44 | 0.18 (−0.20, 0.56) | .36 | 0.00 (−0.03, 0.03) | .95 |
| Fatigue | 0.04 (0.02, 0.05) | <.001 | 0.04 (0.03, 0.06) | <.001 | −0.04 (−0.06, −0.01) | <.01 | −0.08 (−0.11, −0.04) | <.001 | −0.01 (−0.01, −0.00) | <.001 |
| Comorbidity | 0.11 (−0.13, 0.35) | .36 | 0.23 (0.01, 0.46) | .06 | 0.07 (−0.17, 0.31) | .57 | −0.07 (−0.51, 0.37) | .75 | −0.05 (−0.09, −0.01) | .01 |
| **Goal management pattern (vs cluster 1: Moderate engagement)** | | | | | | | | | | |
| Cluster 2: Broad goal management repertoire | −1.93 (−2.54, −1.32) | <.001 | −1.19 (−1.82, −0.56) | <.001 | 2.08 (1.33, 2.83) | <.001 | 4.78 (3.4, 6.15) | <.001 | 0.19 (0.08, 0.30) | <.01 |
| Cluster 3: Holding on | 0.96 (0.06, 1.87) | .04 | 1.17 (0.21, 2.12) | .02 | −0.86 (−1.81, 0.10) | .08 | −0.41 (−2.03, 1.21) | .62 | −0.06 (−0.20, 0.09) | .43 |
| **Interaction (vs cluster 1)** | | | | | | | | | | |
| Time | −0.07 (−0.31, 0.16) | .55 | 0.11 (−0.14, 0.35) | .40 | −0.10 (−0.33, 0.14) | .43 | 0.20 (−0.29, 0.69) | .42 | 0.01 (−0.03, 0.05) | .54 |
| Cluster 2 * time | 0.21 (−0.10, 0.52) | .18 | −0.05 (−0.41, 0.31) | .77 | −0.28 (−0.65, 0.10) | .15 | −0.55 (−1.30, 2.08) | .15 | −0.05 (−0.11, −0.00) | .04 |
| Cluster 3 * time | −0.17 (−0.68, 0.33) | .50 | −0.58 (−0.11, −0.04) | .03 | 0.29 (−0.28, 0.87) | .32 | 0.45 (−0.73, 1.64) | .45 | −0.01 (−0.09, 0.07) | .84 |
| **Interaction (vs cluster 3)** | | | | | | | | | | |
| Time | −0.25 (−0.69, 0.20) | .28 | −0.48 (−0.96, 0.00) | .05 | 0.20 (−0.33, 0.72) | .46 | 0.65 (−0.43, 1.73) | .24 | 0.00 (−0.07, 0.08) | .94 |
| Cluster 2 * time | 0.38 (−0.10, 0.87) | .12 | 0.53 (−0.02, 1.08) | .06 | −0.57 (−1.17, 0.03) | .06 | −1.00 (−2.22, 0.22) | .11 | −0.05 (−0.13, 0.04) | .27 |

*Notes.* The 'Moderate engagement' pattern and the 'Holding on' pattern were used alternately as reference group to study interaction effects.
[a]Male = reference group.

stress and frustration. Levels of fatigue and the average number of comorbidities of people with the 'Holding on' pattern were substantially higher when compared to the other two groups. In contrast, mean pain levels and limitations in functioning due to arthritis for the 'Holding on' pattern did not differ when compared to the other groups. It seems people with the 'Holding on' pattern struggled with limited resources and a high disease burden. An explanation for these observations might be that people with merely a high preference for goal maintenance might not be able to respond appropriately to varying circumstances. Repeatedly experiencing the resultant failure to achieve goals might enlarge the negative impact of polyarthritis on one's quality of life. Personality traits of individuals characterized by the 'Holding on' pattern might propel the focus on unattainable goals, eventually provoking frustration and distress (Carver & Scheier, 1990; Pomerantz *et al.*, 2000). This hypothesis, however, needs further investigation. Nevertheless, people with a 'Holding on' pattern of goal management might benefit from additional support and guidance that would help them to become more flexible when dealing with their threatened goals.

This study showed that a portion of the patients had elevated levels of anxiety over time, in accordance with the literature (Bode & Taal, 2015), as well as elevated levels of depressive symptoms over time. There were only minimal changes over 1 year in levels of PH, indicating that arthritis might be experienced by people as an enduring stressor (Thompson *et al.*, 2011). This suggests that successful adaptation to a chronic disease does not come naturally with time for everyone. Therefore, despite having a greater variety of goal management strategies when compared to patients with the 'Holding on' pattern, patients with the 'Moderate engagement' pattern might also profit from additional guidance to strengthen and deploy various strategies and react in more flexible ways to threatened goal attainment.

The possible negative consequence of clinging to threatened goals does not completely correspond to the ideas underlying many current interventions for chronic diseases. For example, self-management interventions are primarily focused on achieving goals by increasing self-efficacy (Barlow, Wright, Sheasby, Turner, & Hainsworth, 2002), and these interventions are motivated by the desire to control and manage illness and its consequences (Starfield, 2011; Stuifbergen, 2006; Weingarten *et al.*, 2002). Designed to only control disease, such self-management interventions might overlook the goals of maximizing PH and social functioning (Arends, Bode, Taal, & Van de Laar, 2013a). The (implicit) focus on holding onto goals might not fit many patients' reality nor their capabilities.

Through the use of the Integrated Model of Goal Management in the present study, the interplay between various goal management strategies has become somewhat clearer. However, many questions remain unanswered with regard to the relationships between the strategies. Currently, the research literature lacks empirical evidence as to whether it is necessary or preferable to step through a range of strategies in a specific sequence. Nevertheless, an optimal order of application of strategies is assumed in the literature (Brandtstädter & Greve, 1994; Brandtstädter & Renner, 1990; Timmer *et al.*, 2003). The order of strategies ranges from striving to maintain a threatened goal, through adjusting the goal, and finally ending by disengaging from the goal and simultaneously or subsequently reengaging in a new goal. Empirically, endorsement of both the maintenance of goals and adjustment of goals at the same time was found to relate negatively to PH outcomes, possibly reflecting a regulatory dilemma (Bak & Brandtstädter, 1998; Boerner & Jopp, 2007). Boerner and Jopp (2007) assumed the dynamic interplay between those strategies might depend on the nature of the coping challenge, in other words, the

goal(s) at stake. The disengagement of goals and the reengagement in new goals are considered distinct processes that can occur simultaneously or in sequence, and have positive implications in both situations (Wrosch, Scheier, Miller, *et al.*, 2003). People dealing with chronic health conditions may especially require the simultaneous use of different strategies, rather than a shift from one to another (Brandtstädter & Rothermund, 2002).

Also, individual differences in personal and social support resources might influence a person's PH and the adaptive value of a pattern of goal management. Other approaches on internal processes may bring more insight into the simultaneous use of different strategies. For example, appropriate designs, such as single-case research designs that follow individuals over an extended period of time (Barlow, Nock, & Hersen, 2009; Vriezekolk *et al.*, 2011) with a focus on the interplay between personal circumstances, goal management, and its effects on PH, are needed. Also, future studies that focus on examining goal management in response to a discrete stressor might prove particularly valuable, as such studies would allow for the observation of how patients' modify their strategies when managing current threatened goals (Thompson *et al.*, 2011).

Some limitations must be noted in the present study. Firstly, the scales on goal management have applied different kinds of operationalization. The Tenacious Goal Pursuit and Flexible Goal Adjustment scales are considered to measure dimensions of coping tendencies in relation to goals in general (Brandtstädter & Renner, 1990). These measurements are different from the subscales of the Goal Adjustment Scale, which measure general tendencies of managing unattainable goals and particularly focus on the situation in which a goal is perceived as unattainable (Wrosch, Scheier, Miller, *et al.*, 2003). Furthermore, due to the low internal consistency of the subscale measuring disengagement, related results should be interpreted with caution. However, it was demonstrated that the four strategies differentiated clearly between groups of patients and related to PH, supporting the inclusion of this range of strategies.

Secondly, in the Integrated Model of Goal Management, disengagement from goals that are perceived as no longer attainable is considered to be a facet of the broader strategy of the adjustment of goals and consistent with previous theoretical work (Brandtstädter & Greve, 1994). A possible indication of the accuracy of this hypothesis is the agreement in the direction of both strategies in the current study. However, the current analyses are not suited for extended theory testing, and the complex relations between the strategies were not the focus of this article.

The third limitation of this study lies in the observational character and the lack of clinical lab data on disease activity. Furthermore, clinical assessment of anxiety or depressive symptoms was not available in our sample. Moreover, one-fifth of the participants could not be retained during this longitudinal study, which hampered replication of the cluster solution over the three measurement points. Due to participants' attrition, changes in cluster membership have not been captured in the analysis. Thus, limitations generically associated with the methods used must be taken into account when considering the findings. These limitations include biases that are inherent in self-reported data, such as differences in recall and motivational biases.

Fourthly, being part of the labour force is important for many patients with arthritis as it relates to family income, status, the availability of social support, and quality of life (De Croon *et al.*, 2004; Uhlig, 2010). Unfortunately, it was not possible to include satisfaction with participation in the work domain in the analyses since the employment status among the population greatly differed (almost 70% had no paid job or were retired).

Despite these limitations, identifying patterns of goal management strategies has proved to be an excellent way to study goal management in relationship to PH. The resulting three patterns of goal management are straightforward and well interpretable, and our study results provide a valuable indication for the development of interventions promoting PH. Furthermore, studying patterns enabled us to identify common combinations of the four goal management strategies and how these combinations relate to PH. This is a unique finding, and other methods, for example using 4-way interactions in regression analysis, would not have revealed such clear information. Studying patterns of behaviour is also more nuanced and holds more external validity than examining isolated strategies as conducted in earlier studies. Clearly future research should replicate these patterns in other populations with different characteristics and resources that might influence the patterns and their relationship to patients' PH. Future research should also focus on the effects that support for using several goal management strategies has on patients' levels of PH.

### Conclusions

People with arthritis who possessed a broad repertoire of goal management strategies at the start of the study maintained better mental health over the course of a year. Meanwhile, patients who lacked multiple goal management strategies at their disposal appeared to have difficulties with adapting to their chronic disease over time. The three goal management patterns identified in this study are a clear starting point for intervention and support of patients, as people who exhibit a pattern related to lower levels of PH can be identified and possibly profit from support that helps them to stimulate new or other ways to manage their goals. Psychosocial support for such patients could then focus on helping them to become familiar and practiced in using a broader range of goal management strategies when dealing with their threatened goals, and thereby increase their quality of life and psychological well-being.

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## Conflict of interest

All authors declare no conflict of interest.

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