Profiles of Well-Being and Their Associations with Self-Forgiveness, Forgiveness of Others, and Gratitude Among Patients with Rheumatic and Musculoskeletal Diseases

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Profiles of Well-Being and Their Associations with Self-Forgiveness, Forgiveness of Others, and Gratitude Among Patients with Rheumatic and Musculoskeletal Diseases

Objectives: Patients with rheumatic and musculoskeletal diseases (RMDs) often experience poor well-being. Common limitations of the studies on this topic involve using the variable-centered and deficit-based approaches. In this study, we used the person-centered approach to identify profiles of positive (life satisfaction and health status) and negative (depression, anxiety, fatigue, and stress) indicators of well-being among patients with RMDs. Moreover, we tested self-forgiveness, forgiveness of others, gratitude, and sociodemographics as contributors to latent profile membership.

Design: A cross-sectional questionnaire survey

Methods: Using a latent profile analysis, we investigated well-being profiles among 892 patients with RMDs (759 patients with arthritis and 133 with fibromyalgia [FM]) and examined the correlates of latent profile membership.

Results: We identified four profiles of well-being: (1) “life dissatisfaction” (9.2%), (2) “high well-being” (43.4%), (3) “suboptimal well-being” (35.2%), and (4) “very poor well-being” (12.2%). Members of Profile 2 had higher levels of self-forgiveness and gratitude than members of the remaining profiles, had higher levels of forgiveness of others than Profile 3, and were older than members of Profile 4. Moreover, members of Profile 2 had a higher proportion of patients with arthritis relative to those with FM than all other profiles and men to women than Profile 4.

Conclusions: Patients with RMDs are heterogeneous in terms of well-being. Self-forgiveness, gratitude, and forgiveness of others may serve as psychological capital that enhances patients’

well-being. Special attention should be paid to patients with FM, women, and younger patients since they can be especially susceptible to poor well-being.

Keywords: arthritis, fibromyalgia, well-being, forgiveness, gratitude, latent profile analysis, person-centered approach

Introduction

Rheumatic and musculoskeletal diseases (RMDs), such as arthritis and fibromyalgia (FM), can cause severe discomfort and poor well-being. In most studies that have examined the quality of life and well-being in patients with RMDs, the variable-centered approach has been used, which assumes that the population from which the sample was drawn is homogenous, implying that the associations between the variables are the same for all people within the population (Laursen & Hoff, 2006). Moreover, most research in this area has focused on negative indicators of well-being, such as depression or fatigue, neglecting positive ones, such as life satisfaction or self-perceived health status (Edwards et al., 2011; Vincent et al., 2013). In the current study, we addressed these limitations by using a person-centered approach to identify latent subpopulations of arthritis and FM patients with similar patterns of positive and negative indicators of well-being. In addition, we tested self-forgiveness, forgiveness of others, and gratitude as potential contributors to latent profile membership. These positive psychological factors are known to be associated with higher well-being and quality of life among the general population and clinical samples (for a review, see Gao et al., 2022; Jans-Baken et al., 2020).

Rheumatic Conditions and Well-Being

Arthritis refers to more than 100 medical conditions in which one or more joints experience pain, stiffness, swelling, and decreased range of motion (Eakin et al., 2017). FM is a disorder characterized by chronic and widespread musculoskeletal pain, typically with accompanying sleep disruption, fatigue, muscular stiffness, joint pain, and mood or emotional disturbances (Bennett et al., 2007; Offenbächer et al., 2015; Siracusa et al., 2021). FM is sometimes confused with arthritis due to partly similar symptoms experienced by patients (e.g.,

feeling pain in joints, muscles, and soft tissues); yet, despite its debilitating course, FM is not an inflammatory or autoimmune disease and does not cause damage to the joints.

However, both arthritis and FM may have a serious negative impact on patients' well-being, including poor psychological and psychiatric outcomes such as negative affect, depressive disorders, anxiety, stress, fatigue, and suicidal ideation and behavior (Edwards et al., 2011; Galvez-Sánchez et al., 2019). Patients can also experience feelings of guilt, shame, embarrassment, isolation, and social stigma due to these medical conditions (Hamama & Itzhaki, 2023; Offenbächer et al., 2015).

In addition to investigating psychosocial risk factors and potentially deleterious outcomes in patients with RMDs, it is important to explore patient well-being and its correlates (Hirsch et al., 2021; Ristic et al., 2023). Well-being is commonly viewed as the combination of positive hedonic states and functioning well (Ruggeri et al., 2020), and can include both high levels of positive factors (such as life satisfaction and self-perceived health) and low levels of negative factors (such as depression and anxiety) (Larsson et al., 2019). Importantly, both types of factors play significant roles in treatment outcomes. While many negative aspects of well-being are associated with poor long-term health outcomes, positive indicators may serve as buffers against the harmful effects of illness (Lamers et al., 2011). For example, in a study by Larsson et al. (2019), baseline higher well-being was predictive of lower pain severity two years later, both in participants with and without chronic pain, and life satisfaction buffered against pain severity in patients with chronic pain. Besides the objective benefits for treatment outcomes, taking care of patient's well-being is important in itself because it ensures that patients are treated holistically (Kunneman et al., 2023).

Self-Forgiveness, Forgiveness of Others, and Gratitude in RMDs

In light of the importance of caring for the well-being of patients with RMDs, there is a need to identify psychological factors that contribute to better life satisfaction and health status and lower levels of negative affective states. Doing so could offer novel approaches for addressing deficits in well-being that are common in this population. Self-forgiveness, forgiveness of others, and gratitude can be good candidates for this role, especially as there are now several effective approaches for cultivating them in people with chronic pain conditions (Lee & Enright, 2014; Toussaint et al., 2010). Self-forgiveness refers to releasing resentment toward oneself for a perceived transgression or wrongdoing and increasing benevolence toward the self, whereas forgiveness of others relates to the intentional decision to let go of resentment and anger toward a transgressor (Toussaint et al., 2009, 2023). Gratitude is understood as the act of recognizing and appreciating the positive aspects of life, whether they are tangible or intangible (Sansone & Sansone, 2010; Wood et al., 2010).

Previous studies supported the beneficial role of forgiveness and gratitude in the well-being of patients with RMDs (Eaton et al., 2014; Hirsch et al., 2021; Offenbächer et al., 2015; Vallejo et al., 2020). For example, in a study by Offenbächer et al. (2017), both forgiveness of self and forgiveness of others were positively related to quality of life, and negatively related to levels of depression, anxiety, and anger in a sample of patients with FM. In a longitudinal study by Sirois and Wood (2017), gratitude uniquely predicted lower depression among patients with inflammatory bowel disease and arthritis. Similarly, in a study by Toussaint et al. (2017), gratitude was positively related to the quality of life of patients with FM (see also Eaton et al., 2014). Findings on the mechanisms underlying the relationship between protective positive psychological variables and well-being in patients with RMDs are limited. Those available –

along with theoretical consideration (Toussaint et al., 2009) – suggest that mediating mechanisms can involve reducing anger (Carson et al., 2005), increasing positive emotions (Eaton et al., 2014), promoting positive coping strategies (Vallejo et al., 2020), and improving sleep quality (Hirsch et al., 2021; Ng & Wong, 2013).

Methodological Issues in Evaluating Well-Being

Methods for evaluating patients' well-being can take one of two approaches: 1) the variable-centered approach or 2) the person-centered approach. The former approach focuses on identifying associations between variables and can be useful for understanding how different variables interact and influence each other (Kusurkar et al., 2021). In the latter approach, which is still less often used than the former, individuals are grouped together based on identified characteristics. In the context of RMDs, the person-centered approach can provide insight into factors that contribute to well-being and facilitate the identification of commonalities between cases (Masi et al., 2002). For example, in a study on the subjective well-being of patients with chronic low back pain, three clinical profiles were identified: high well-being, moderate well-being, and poor well-being, with the most significant differences between the groups including pain intensity, subjective disability, and psychosocial resources (Wettstein et al., 2019; see also Dyball et al., 2023).

The Current Study

The present study builds upon existing work on the contributors to well-being and positive psychological characteristics of patients with RMDs. The main purpose of the study was to examine the various profiles of well-being indicators for patients with arthritis and FM by applying a person-centered approach. Based on the results of the previous studies, which used the person-centered approach to explore the profiles of positive and negative indicators of well-

being in different samples (Goodman et al., 2017; Lazić et al., 2021), including patients with chronic illness (Wettstein et al., 2019), we hypothesized that the following profiles would be distinguished: (1) with low levels of well-being, (2) with high levels of well-being, and (3) with moderate levels of both positive and negative well-being indicators (Hypothesis 1). We also expected that at least one profile with mixed levels of positive or negative well-being indicators would be observed. However, we did not formulate any specific hypothesis on this profile, as different mixed profiles of well-being were observed in previous studies, depending on the positive and negative well-being indicators included and the sample used (see, e.g., Horton et al., 2024; Rzeszutek et al., 2019).

Besides establishing the well-being profiles, we aimed to seek potential contributors to the latent profile membership among self-forgiveness, forgiveness of others, gratitude, sociodemographics, and the type of disease. We hypothesized that patients in a profile reflecting high levels of well-being would have higher levels of self-forgiveness, forgiveness of others, and gratitude than patients in the remaining profiles (Hypothesis 2). Moreover, previous studies revealed lower levels of well-being and mental health and higher levels of pain among patients with FM (relative to those with arthritis) (Birtane et al., 2007; Bucourt et al., 2021; Gonzalez et al., 2019; Ovayolu et al., 2011) and among women with RMDs than men with these conditions (Castro-Sán□he et al., 2012; Guglielmo et al., 2018; Wolfe et al., 2018). Based on these results, we hypothesized that the proportion of persons with arthritis relative to those with FM and men to women would be higher in a profile with high levels of well-being than in other profiles (Hypotheses 3 and 4, respectively).

Methods

Sample

The sample consisted of 892 patients with RMDs attending a healing spa gallery in Austria, including 759 patients diagnosed with arthritis (431 male and 328 female) and 133 with FM (36 men and 97 women). Among patients with arthritis, 402 were diagnosed with ankylosing spondylitis, 299 with osteoarthritis, 115 with rheumatoid arthritis, and 80 with psoriatic arthritis; 115 patients were diagnosed with two, and 11 patients with three different types of arthritis.

The mean age of the sample was 57.94 years (*SD* = 10.93). Most participants graduated from secondary school (*n* = 262; 29.4%) or junior high school (*n* = 202; 22.6%). Nearly one out of five (*n* = 163; 18.3%) participants graduated from high school, 116 (13.0%) from college, and 149 (16.7%) from university. The highest number of participants was employed or self-employed (*n* = 476; 53.3%), followed by retired (*n* = 341, 38.2%), homemakers (*n* = 21; 2.4%), sick-listed (*n* = 18; 2.0%), pensioner (*n* = 17; 1.9%), unemployed (*n* = 13; 1.5%), students (*n* = 3; 0.3%), those on maternal/paternal leave (*n* = 2; 0.2%), or educational leave (*n* = 1; 0.1%), or other (*n* = 1; 0.1%).

Procedure

LimeSurvey (Version 3) was used to conduct an anonymous online survey of adult patients regularly seeking treatment at the Gastein Healing Gallery in Bad Gastein, Austria. A total of 6,465 invitations were sent. The survey was opened by 2,017 individuals, and 1,770 started filling it out. Amongst 1,317 individuals who completed the survey, the inclusion criterion for the current study (being diagnosed with one of the RMDs) was met by 892 patients whose data were included in the analyses.

The survey was prepared in German. For most tools, their German adaptations were used (see below for details). For the tools assessing life satisfaction, health status, and forgiveness, the

guidelines for the cross-cultural translation of self-reported measures were followed (Beaton et al., 2000; Guillemin et al., 1993). First, the forward translation to German was prepared by two independent bilingual researchers, one informed and the other uninformed about the concepts being examined. Then, both versions were synthesized after resolving discrepancies with the translators' reports. Second, the tools were back translated from German to English by two independent translators with no prior knowledge of the topic of the research. At the last stage, the original and the back-translated versions of the tools were compared for discrepancies by the expert committee and a consensus on the wording was reached.

Before completing the survey, patients were informed that their participation in the study was completely voluntary, and a description of the study and questionnaires was provided. Patients provided consent to participate. As this was not an intervention study and data were collected anonymously, review of the study by an institutional ethics committee was not required according to the Austrian Federal Office for Safety in Healthcare (European Legislation Identifier (ELI): https://www.ris.bka.gv.at/eli/bgbl/II/2022/374/20221007 [accessed on 18 March 2024]). This project was conducted in accordance with the Declaration of Helsinki.

Measures

Life Satisfaction

Life satisfaction was measured using a single item: "All things considered, how satisfied are you with your life as a whole?" assessed with an 11-point Likert-type scale from 0 = "completely dissatisfied" to 10 = "completely satisfied" (Cheung & Lucas, 2014). This single-item measure of life satisfaction has been found to perform very similarly compared to the multiple-item measures (for details, see Cheung & Lucas, 2014).

Health Status

To measure perceived health status, we used a single item adapted from the EQ-5D, which is one of the most common indices that assess the quality of life (Rabin & de Charro, 2001). Each individual was asked to rate their health status from 0 (“worst health”) to 100 (“best health”). The measure has been used in many previous studies, which supported its reliability and validity (see, e.g., Stark et al., 2010; Tan et al., 2013).

Depression and Anxiety

Depression and anxiety were measured using the German adaptation (Löwe et al., 2010) of the four-item Patient Health Questionnaire (PHQ-4; Kroenke et al., 2009). Participants were presented with the question stem (“Over the last 2 weeks, how often have you been bothered by the following problems?”), followed by two items assessing depression (e.g., “Little interest or pleasure in doing things”) and two items assessing anxiety (e.g., “Feeling nervous, anxious or on edge”). Items were rated on a four-point Likert-type scale (0 = “not at all,” 1 = “several days,” 2 = “more than half the days,” and 3 = “nearly every day”). This ultra-brief measure has been found to be a reliable and valid instrument for depression and anxiety screening (Löwe et al., 2010; Wicke et al., 2022). In the present study, the Spearman-Brown coefficient was .76 and .82 for depression and anxiety subscales, respectively.

Stress

Stress was measured using the short version of the Perceived Stress Scale-4 (PSS-4; Cohen et al., 1983) adapted to German by Klein et al. (2016). The PSS-4 is a widely used and well-validated measure of perceived stress. Each of the four items (example item: “In the last month, how often have you felt that you were unable to control the important things in your life?”) was rated using a five-point Likert-type scale (0 = “never,” 1 = “almost never,” 2 =

"sometimes," 3 = "fairly often," and 4 = "very often"). Two items of the PSS-4 were reverse-coded before the average level of perceived stress was calculated. In the present study, McDonald's omega [ω] coefficient for the PSS-4 was .69.

Fatigue

To measure fatigue, we used the General Fatigue subscale (GF) from the Multidimensional Fatigue Inventory (MFI; Smets et al., 1995) in the German adaptation by Schwarz et al. (2003). The subscale consists of two positively (e.g., "I feel rested") and two negatively formulated items (e.g., "I tire easily") rated on a five-point Likert-type scale (from 0 = "yes, that is true" to 4 = "no, that is not true"). Adequate psychometric properties of this measure have been supported in previous studies (Jelsness-Jørgensen et al., 2022; Westenberger et al., 2022). In the present study, McDonald's ω coefficient for the GF subscale was .84.

Self-Forgiveness and Forgiveness of Others

Two aspects of forgiveness – self-forgiveness and forgiveness of others – were measured using two scales of the Toussaint Forgiveness Scale (TFS; Toussaint et al., 2001). Self-forgiveness was measured with two items (e.g., "I find it hard to forgive myself for some of the things I have done wrong.") rated on a five-point Likert-type scale (1 = "Strongly agree," 2 = "Agree," 3 = "Neither agree nor disagree," 4 = "Disagree," and 5 = "Strongly disagree"), whereas forgiveness of others was measured with three items (e.g., "When someone has hurt you, how often do you try to forgive the other person?") rated on a five-point Likert-type score (1 = "Never," 2 = "Hardly ever," 3 = Not too often," 4 = "Fairly often," and 5 = "Very often"). Two items for the forgiveness of others needed reverse coding before the average score for this subscale was calculated. Previous studies supported the good validity and adequate reliability of both scales (see, e.g., Charzyńska et al., 2021; Toussaint et al., 2001, 2023). In the present study,

the Spearman-Brown coefficient was .85 for self-forgiveness, and McDonald's ω coefficient was .61 for forgiveness of others.

Gratitude

Gratitude was measured with the German adaptation (Hudecek et al., 2020) of the Gratitude Questionnaire (GQ-6; McCullough et al., 2002), which is a widely used scale reported to have good psychometric properties (Card, 2019; Gouveia et al., 2019). The participants rated their level of agreement with six items (e.g., "I am grateful to a wide variety of people") measuring gratitude as a life orientation, using a five-point Likert scale (1 = "Strongly disagree," 2 = "Disagree," 3 = "Neutral," 4 = "Agree," and 5 = "Strongly agree"). Two items had been reverse-coded before the average level of gratitude was calculated. In the present study, McDonald's ω for the GQ-6 was .71.

Statistical Analyses

The analyses were preceded by data cleaning and inspection for missing values. The data for well-being indicators were complete. To deal with missing values in the correlates of latent profile membership, we used a multiple imputation technique, with 50 imputations being specified. After imputing missing values, we computed descriptive statistics and zero-order correlations between the study variables.

To classify patients into mutually exclusive and exhaustive subgroups (called profiles) based on their positive (life satisfaction and health status) and negative indicators (depression, anxiety, perceived stress, and fatigue), we employed latent profile analysis (LPA), which is a person-centered method suitable for continuous variables (Berlin et al., 2014). Models consisting of one to six profiles were tested using a robust maximum likelihood (MLR) estimator. Models were compared using the following information criteria: Bayesian Information Criterion (BIC),

Akaike Information Criterion (AIC), and sample-adjusted BIC (SABIC). Lower values of these indices suggest a better-fitted model. Moreover, we calculated three tests that allow researchers to compare model fit between *k*-1 and *k* cluster models: Vuong-Lo-Mendell-Rubin test (VLMR), Lo-Mendell-Rubin adjusted likelihood ratio test (LMR-aLRT), and bootstrap likelihood ratio test (BLRT) (Tein et al., 2013). Statistically significant results of these tests support the *k*-cluster model over *k*-1 clusters. We also supported our decision on the number of profiles by considering model parsimony (favoring less complex models), the size of the profiles (excluding profiles with less than 5% as potentially artificial and non-replicable), and the interpretability and substantive meaning of each solution (Collins & Lanza, 2010). In addition, we calculated the entropy value to assess the precision with which the participants were classified into latent profiles. Values of entropy of .8 and higher indicate "good" classification of individual cases into profiles (Berlin et al., 2014). All calculations were computed using the MPlus version 8.0 (Muthén & Muthén, 2017).

After identifying the optimal number of profiles, we examined the potential correlates of latent profile membership, including self-forgiveness, forgiveness of others, gratitude, gender, age, and type of disease (arthritis versus FM). The multinomial logistic regression was performed in Mplus using the three-step estimation (R3STEP) command. As the final step, we performed a sensitivity analysis to check the robustness of the primary analyses.

Results

Preliminary Analysis

The overall percentage of missing data for correlates was 6.52%. Table 1 presents means, standard deviations, and zero-order correlations between the study variables. Indicators of well-being were moderately related to each other. Self-forgiveness, forgiveness of others, and

gratitude were positively related to positive indicators of well-being and negatively to negative indicators of well-being, except for the relationship between forgiveness of others and health status, which was non-significant. Being male was inversely related to all negative indicators of well-being. Moreover, being diagnosed with FM (as opposed to with arthritis) was negatively related to life satisfaction, health status and gratitude, and was positively related to depression, anxiety, stress, and fatigue.

Latent Profile Analysis

Table 2 presents the comparison of LPA models for the well-being indicators. The BIC, AIC, and SABIC values were not very informative since they decreased with the addition of latent profiles. The *p*-value for the BLRT test was significant for every model comparison at $\alpha = .001$. Nonetheless, the results of the VLMR test and the LMR-LRT supported the four-profile solution over the five-profile solution (see Table 2). Moreover, the inspection of models with four and five profiles suggested that adding a fifth profile to the four-profile solution did not bring new information. Considering all the above, as well as the good separation of the profiles indicated by the value of entropy and sufficient sample size of the smallest profile (see Table 2), we decided to retain the four-profile solution as best-fitting data and adopt it for further analysis.

Figure 1 presents four latent profiles identified by LPA. Members of Profile 1 ("life dissatisfaction;" 9.2%) had very low levels of life satisfaction, relatively low levels of health status, relatively high levels of stress and fatigue, and average levels of depression and anxiety. Profile 2 ("high well-being;" 43.4%), the largest group, included patients with high levels of life satisfaction and health status and low levels of depression, anxiety, stress, and fatigue. Profile 3 ("suboptimal well-being;" 35.2%) consisted of patients with moderate scores on both positive and negative indicators of well-being. Profile 4 ("very poor well-being;" 12.2%) grouped

patients with low levels of life satisfaction and health status and with high levels of depression, anxiety, stress, and fatigue.

Correlates of Latent Profile Membership

Table 3 presents the results of multinomial logistic regression, in which psychological, sociodemographic, and disease-related variables were tested as potential correlates of latent profile membership. Patients in Profile 2 (“high well-being”) were older and had a higher proportion of men to women compared to Profile 4 (“very poor well-being”). Moreover, the proportion of patients with arthritis relative to those with FM was higher in the members of Profile 2 (“high well-being”) and Profile 3 (“suboptimal well-being”) compared to the members of Profile 4 (“very poor well-being”). In addition, patients in the former profiles had higher levels of self-forgiveness and gratitude than patients in the latter.

Compared to members of Profile 2 (“high well-being”), members of Profile 1 (“life dissatisfaction”) and Profile 3 (“suboptimal well-being”) were younger, had lower levels of self-forgiveness and gratitude and had a higher proportion of patients diagnosed with FM relative to those diagnosed with arthritis. Moreover, members of Profile 3 (“suboptimal well-being”) had lower levels of forgiveness of others than members of Profile 2 (“high well-being”). In addition, patients in Profile 3 (“suboptimal well-being”) had higher levels of self-forgiveness and gratitude than patients in Profile 1 (“life dissatisfaction”).

Sensitivity Analysis

To check the robustness of the LPA results, we performed a sensitivity analysis. First, using the one-way variance analysis (ANOVA) and the Scheffé test, we compared the levels of well-being indicators among subsamples of patients with different types of arthritis and those with FM. The results demonstrated non-significant differences for most group comparisons

between the subsamples of patients with different types of arthritis. By contrast, substantial differences occurred between the patients with different types of arthritis and those with FM, with the latter demonstrating overall lower levels of well-being than the former (see Appendix A). Considering these results, we recalculated the LPA, excluding the subsample of patients with FM from the analysis to check if the identified profiles and the associations between correlates and latent profile membership would be the same for the subsample of patients with various types of arthritis as for the entire sample.

The comparison of LPA models for arthritis patients is presented in Appendix B. Using the same criteria as for the primary analysis, the four-profile model was regarded as best-fitting. As shown in Appendix C, the shape of the profiles and the profile size were almost the same as in the primary analysis. In addition, the associations between potential correlates and latent profile membership were very similar to those noted in the primary LPA, with two minor differences observed: the level of gratitude no longer significantly (p = .070) differentiated members of Profile 2 (“high well-being”) and Profile 3 (“suboptimal well-being”), and the difference in age became non-significant (p = .101) between patients in Profile 1 (“life dissatisfaction”) and Profile 2 (“high well-being”) (see Appendix D). Taken together, the results of the sensitivity analysis demonstrated consistency with those from the primary analysis, supporting the robustness of the conclusions based on the entire sample.

Discussion

Previous research has tended to examine well-being in RMD populations taking a deficit-based approach in defining and investigating quality of life and well-being, and it has also used the variable-centered approach. The purpose of the current study was to address these issues by taking a strengths-based, person-centered approach to (1) examine the profiles of positive and

negative indicators of well-being among patients with arthritis and FM and (2) examine self-forgiveness, forgiveness of others, gratitude, sociodemographics, and type of disease as contributors to latent profile membership. Hypothesis 1 was partially supported, as we identified four qualitatively distinct well-being profiles, namely: (1) "life dissatisfaction," (2) "high well-being," (3) "suboptimal well-being," and (4) "very poor well-being." The results indicate that over 20% of participants experienced poor well-being in all indicators or at least low life satisfaction. Moreover, as illustrated by Profile 1, some patients may experience very low levels of life satisfaction despite not being depressed or anxious. In addition, as illustrated by Profile 3, positive indicators of well-being may co-occur with negative ones. These results support the notion that positive and negative psychological constructs are separate entities (Huppert & Whittington, 2003; Karademas, 2007; Lazić et al., 2021) and, thus, should both be included in well-being studies and be explored using a person-centered approach.

As for the contributors to latent profile membership, members of Profile 2 ("high well-being") had higher levels of self-forgiveness and gratitude than members of other profiles, which partially supports Hypothesis 2. These findings corroborate previous studies that demonstrated a positive role of self-forgiveness and gratitude for the well-being of people with chronic pain (Offenbächer et al., 2015; Sirois & Wood, 2017; Vallejo et al., 2020). Some patients with RMDs may experience feelings of guilt and shame due to their disease, and an inability to forgive themselves may severely affect their well-being. Moreover, the results of the current study showed that gratitude is related to the higher well-being of patients with RMDs, which is □onsistent with previous studies on this topi□(Hin□h, 2023; Sirois & Wood, 2017). This suggests that the ability to engage in thankfulness despite illness may be an important tool for enhancing life satisfaction and preventing mental health problems in persons with RMDs.

Differences in forgiveness of others among the profiles were noted only between members of Profile 2 (“high well-being”) and Profile 3 (“suboptimal well-being”). At the same time, members of Profile 3 had higher levels of self-forgiveness and gratitude than members of Profiles 1 (“life dissatisfaction”) and 4 (“poor well-being”), which may counterbalance low levels of forgiveness of others, resulting in second-highest results on well-being noted in this group.

As expected, the proportion of patients with arthritis relative to those with FM was higher for Profile 2 than for other profiles (Hypothesis 3 supported). This result suggests that patients with FM may be more susceptible to poor well-being and impaired psychological functioning than those with arthritis (Galvez-Sánchez et al., 2022; Gonzalez et al., 2019; Ovayolu et al., 2011). This result is consistent with previous studies, in which FM has been noted to have a more negative impact on health-related quality of life than most other rheumatic conditions (Cuervo et al., 2020; Piccinni et al., 2011; Tander et al., 2008). It is also important to note in this context that, in the present study, being diagnosed with FM was negatively related to gratitude. This result is similar to the findings of previous studies in which gratitude levels were lower in patients with FM compared to healthy controls (Toussaint et al., 2017). Patients with FM often experience high interpersonal distress (Offenbächer et al., 2015), suffer from a lack of social support (Bernard, 2000), and social stigma (Offenbächer et al., 2017), which can make focusing on and appreciating the positive in one’s life more difficult.

As for gender differences, the proportion of men to women was higher in members of Profile 2 (“high well-being”) than those belonging to Profile 4 (“poor well-being”), partially supporting Hypothesis 4. These results suggest that women with RMDs may be more prone to poor well-being than men, which is consistent with some previous studies. For example,

Tarannum et al. (2022) observed higher levels of pain, fatigue, poor functional status, and worse quality of life in women with inflammatory arthritis compared to men diagnosed with this illness. Similarly, among patients with FM, women demonstrated higher pain and symptom severity (Wolfe et al., 2018), anxiety, distress, and depression than men (Castro-Sánche et al., 2012; Guglielmo et al., 2018).

Although not hypothesized, age predicted profile membership, with older patients more often being members of Profile 2 ("high well-being") than members of other profiles. This difference may be related to the timing of life events (Bee & Boyd, 2019); that is, for younger patients, being diagnosed with arthritis or FM may be a more unexpected event than for older patients and, thus, may have a greater impact on their well-being. In addition, older patients may have learned, over time, to adapt to the disease and better cope with related limitations than younger patients (see also Hirsch et al., 2021; Redeker et al., 2018).

From a practical point of view, results of the current study suggest that self-forgiveness, gratitude, and forgiveness of others may play beneficial roles in the well-being of people with RMDs and, as such, might be included in treatment. This is especially important given the fact that patients with RMDs can experience anger, anger rumination, shame, and guilt due to their condition and related consequences, and public and internalized stigma (Feldman et al., 2014; Offenbächer et al., 2015; Toussaint et al., 2019). Moreover, in patients with FM, studies noted lower levels of self-forgiveness, forgiveness of others, and gratitude compared to healthy controls (Offenbächer et al., 2017; Toussaint et al., 2017), which supports the need to incorporate them into treatment. Forgiveness can be promoted through evidence-based forgiveness psychoeducational programs (Toussaint et al., 2010). Gratitude may be enhanced using simple, low-cost and accessible interventions, such as gratitude journaling, writing a gratitude letter, or

paying a gratitude visit (Sansone & Sansone, 2010), as well as more complex psychological interventions (see Hausmann et al., 2017). Moreover, forgiveness and gratitude can also be introduced into treatment as part of psychological therapies used in RMDs, such as cognitive-behavioral therapy and acceptance and commitment therapy, or be combined with other practices, such as mindfulness (Swain et al., 2020).

Considering the fact that pretreatment variables such as patients' characteristics may influence the treatment outcomes for chronic pain (Chen et al., 2023; de Rooij et al., 2013; Forden et al., 2023; Hedman-Lagerlöf et al., 2023), special attention is needed for patients with FM, women, and younger persons because they may be more prone to low levels of well-being than patients with arthritis, men, and older persons, respectively. Both positive and negative indicators of well-being should be comprehensibly diagnosed and thoroughly monitored among those patients in particular. Moreover, incorporating forgiveness and gratitude interventions into treatment may be especially recommended in these groups in order to enhance patients' well-being. Additional support for these groups of patients is congruent with the idea of person-centered care, according to which its treatment should be tailored to the characteristics and associated unique resources and needs of the patient (Kunneman et al., 2023; Masi et al., 2002).

Strengths and Limitations

The findings from the current study should be considered in light of several strengths and limitations. Key strengths include the relatively large sample size, examining positive and negative indicators of well-being, implementing mixture modeling to identify well-being profiles, and performing a sensitivity analysis to examine the robustness of findings. However, limitations should also be considered. First, due to the cross-sectional design, no firm conclusions about the directions of the associations among the variables can be drawn. Second,

the sample consisted exclusively of patients attending the spa gallery, so caution should be exercised when generalizing the findings to other groups of patients. Additionally, our method of recruiting patients who were regularly seeking treatment in the spa gallery may have introduced a response bias. Voluntary participation in the study may be related to some specific personality characteristics or motives of participants (see Lönnqvist et al., 2007; Sheridan et al., 2020), which could influence the results to some extent. Third, we did not ask the patients if they had ever attended well-being intervention programs or therapies, so this variable could not be controlled for in the model. Last, due to the purpose of the current study and to ensure an adequate sample size to conduct an LPA (see Spurk et al., 2020), four types of arthritis were combined into one general category of arthritis. Nevertheless, the comparison of well-being levels among subgroups of patients with arthritis (see Appendix A) showed only a few differences between the subgroups, justifying combining them into one group.

Conclusions

Overall, the current findings indicate that patients with RMDs are heterogeneous in terms of their well-being indicators and that both positive and negative indicators of well-being are relevant for understanding differences between different profiles of well-being. Our findings further demonstrate that a person-centered approach is useful for detecting various profiles of well-being in this group and for identifying patients who may be most susceptible to low levels of well-being. As positive psychological qualities that can be cultivated with low-cost and easy to implement interventions, self-forgiveness, forgiveness of others, and gratitude can serve as psychological capital to foster well-being despite the challenges of living with chronic pain.

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Table 1

Descriptive Statistics and Correlations Between the Study Variables

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) Life satisfaction	1											
(2) Health status	.47***	1										
(3) Depression	−.52***	−.43***	1									
(4) Anxiety	−.45***	−.33***	.64***	1								
(5) Stress	−.56***	−.35***	.54***	.58***	1							
(6) Fatigue	−.51***	−.48***	.61***	.52***	.53***	1						
(7) Self-forgiveness	.32***	.17***	−.27***	−.29***	−.41***	−.24***	1					
(8) Forgiveness of others	.26***	.06	−.19***	−.21***	−.27***	−.14***	.33***	1				
(9) Gratitude	.36***	.19***	−.27***	−.24***	−.32***	−.19***	.30***	.33***	1			
(10) Gender	.06	.06	−.10**	−.13***	−.09**	−.16***	.01	−.05	−.10**	1		
(11) Age	.15***	.04	−.17***	−.12***	−.16***	−.19***	.02	−.01	.01	.13***	1	
(12) Type of disease	−.18***	−.18***	.19***	.20***	.15***	.24***	−.01	−.05	−.08*	−.21***	−.02	1
M	7.29	65.69	0.79	0.60	1.40	2.02	3.45	3.63	4.05	52.4%[a]	57.94	85.1%[b]
SD	1.99	19.90	0.72	0.67	0.75	1.00	1.06	0.71	0.60	–	10.93	–
Range	0–10	1–100	0–3	0–3	0–4	0–4	1–5	1–5	1–5	–	20–85	–

Note. *$p < .05$, **$p < .01$, ***$p < .001$. *M* = mean, *SD* = standard deviation. [a] For gender, the value indicates the percentage of men in the sample. [b] For the type of disease, the value indicates the percentage of patients with arthritis in the sample. Gender and the type of disease were coded as categorical variables (gender: 0 = women, 1 = men; type of disease: 0 = arthritis; 1 = fibromyalgia). *N* = 892.

Table 2

Summary of the Model Selection Criteria

Number of profiles	BIC	AIC	SABIC	Entropy	Smallest profile	VLMR (p-value)	LMR-aLRT (p-value)	BLRT (p-value)
1	15,264	15,206	15,226	1.0	–	–	–	–
2	13,760	13,670	13,700	.83	31.5%	.002	.002	< .001
3	13,204	13,080	13,121	.84	12.5%	< .001	< .001	< .001
4	**13,113**	**12,955**	**13,008**	**.83**	**9.2%**	**.038**	**.041**	**< .001**
5	12,998	12,806	12,871	.86	7.8%	.065	.068	< .001
6	12,889	12,664	12,740	.88	2.4%	.006	.007	< .001

Note. BIC: Bayesian Information Criterion; AIC: Akaike Information Criterion; SABIC: sample-size adjusted BIC; VLMR = Vuong-Lo-Mendell-Rubin test; LMR-aLRT = Lo-Mendell-Rubin adjusted likelihood ratio test; BLRT = bootstrap likelihood ratio test. Bold values represent a best-fitting model. $N = 892$.

Table 3

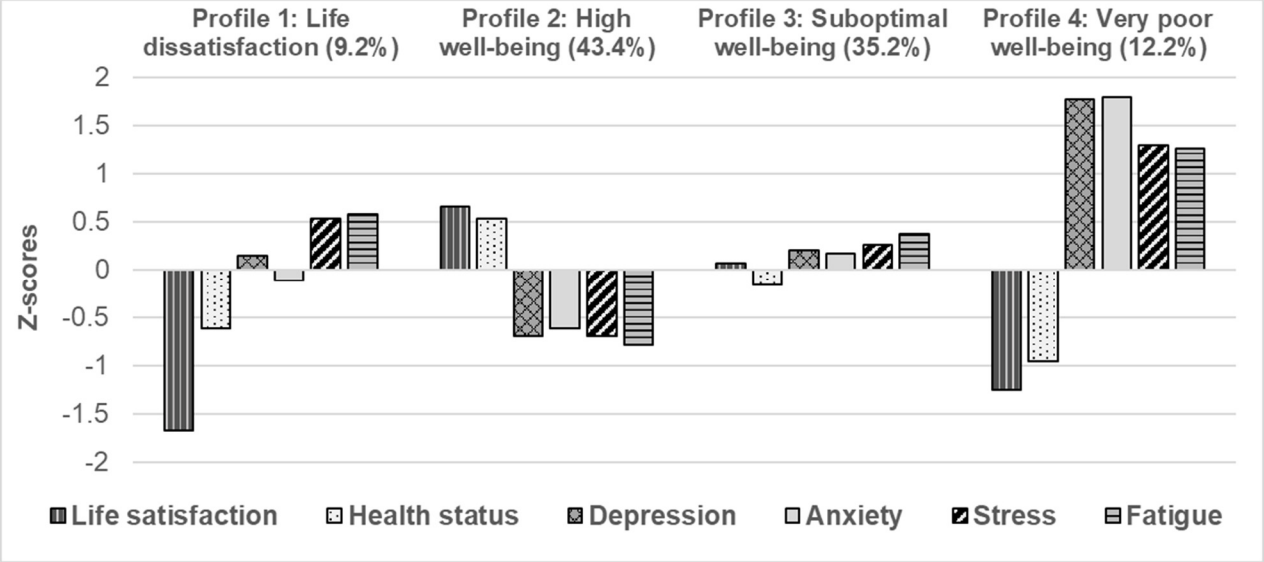
Predictors of Latent Profile Membership with the Four-Profile Model

Correlates	Comparison of latent profiles											
	Profile 1 vs. 2		Profile 1 vs. 3		Profile 1 vs. 4		Profile 2 vs. 3		Profile 2 vs. 4		Profile 3 vs. 4	
	Estimate (SE)	OR	Estimate (SE)	OR	Estimate (SE)	OR	Estimate (SE)	OR	Estimate (SE)	OR	Estimate (SE)	OR
Self-forgiveness	**0.78*** (0.20)**	**2.19**	**0.44* (0.20)**	**1.56**	–0.01 (0.22)	0.99	**–0.34** (0.12)**	**0.71**	**–0.79*** (0.16)**	**0.45**	**–0.45** (0.16)**	**0.64**
Forgiveness of others	0.19 (0.17)	1.22	−0.05 (0.18)	0.95	–0.08 (0.19)	0.92	**–0.25* (0.11)**	**0.78**	–0.27^{t} (0.15)	0.76	–0.03 (0.15)	0.97
Gratitude	**0.79*** (0.20)**	**2.20**	**0.54* (0.21)**	**1.71**	–0.05 (0.20)	0.95	**–0.25* (0.12)**	**0.78**	**–0.84*** (0.14)**	**0.43**	**–0.59*** (0.14)**	**0.56**
Gender	0.40 (0.35)	1.49	0.30 (0.36)	1.35	–0.17 (0.39)	0.84	−0.10 (0.20)	0.91	**–0.57* (0.28)**	**0.57**	–0.47^{t} (0.28)	0.63
Age	**0.46* (0.18)**	**1.59**	0.07 (0.19)	1.07	–0.09 (0.20)	0.91	**–0.40*** (0.11)**	**0.67**	**–0.55*** (0.14)**	**0.58**	–0.16 (0.14)	0.86
Type of disease	**–1.56*** (0.43)**	**0.21**	−0.64 (0.41)	0.53	0.07 (0.41)	1.07	**0.92** (0.33)**	**2.50**	**1.63*** (0.36)**	**5.08**	**0.71* (0.31)**	**2.03**

Note. Values are estimates from the R3STEP multinomial logistic regression analysis with standard errors in parentheses. OR = odds ratio; $^{t}p \in$ <.05; .10), $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$. Positive estimate values indicate that higher values on the correlate make an individual more likely to belong to the second profile of the two being compared; negative estimate values indicate that higher values on the correlate make an individual more likely to belong to the first profile of the two being compared. All significant coefficients were bolded. Gender and the type of disease were coded as categorical variables (gender: 0 = women, 1 = men; type of disease: 0 = arthritis; 1 = fibromyalgia). Profile 1: "Life dissatisfaction," Profile 2: "High well-being," Profile 3: "Suboptimal well-being," Profile 4: "Very poor well-being." $N = 892$.

Figure 1

Four-Profile Model of Well-Being



Note. Z-scores: standard scores. $N = 892$

Statement of Contribution:

What is already known on this subject?

- Patients with rheumatic and musculoskeletal diseases (RMDs) often experience poor well-being.
- Most studies on the well-being of patients with RMDs focus on its negative indicators, often neglecting positive ones.
- Research on the well-being of patients with RMDs has been dominated by the variable-centered approach, despite its numerous limitations.

What does this study add?

- Patients with RMDs are heterogeneous in terms of positive and negative indicators of well-being.
- Self-forgiveness, forgiveness of others, and gratitude are related to latent profile membership.
- Women, younger patients, and those diagnosed with fibromyalgia can be more prone to poor well-being.

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