

The first 2 years of rheumatoid arthritis: The influence of acceptance on pain, physical limitation and depression

0(0) 1–11

© The Author(s) 2013

Reprints and permissions:

sagepub.co.uk/journalsPermissions.nav

DOI: 10.1177/1359105313499807

hpq.sagepub.com



José Pinto-Gouveia¹, Joana Costa¹ and João Marôco²

Abstract

The influence of acceptance in the progression of pain, physical limitation and depression was explored in the first 2 years of rheumatoid arthritis. Latent growth curve models showed significant increases in pain, physical limitation and depression. Besides that, the levels of pain and physical limitation at the baseline were associated with acceptance but not its progression across time. Therefore, patients with higher scores of acceptance reported less pain and physical limitation. The progression of depression was associated with acceptance; higher acceptance patients had slower growth rates of depression across time, even when pain and physical limitations increased. The inclusion of pain acceptance in clinical practice is discussed.

Keywords

acceptance, depression, pain, physical limitation, rheumatoid arthritis

Introduction

Rheumatoid arthritis (RA) is a chronic, painful, disabling disease that affects 0.35%–0.50% of the Portuguese population, where it has 40,000 diagnosed cases (Lipsky, 2000; Monjardino et al., 2011). Data also show that RA is the main reason for temporary disability, responsible for 40%–60% of cases of long-term disability. It is also responsible for 35%–41% of early retirement in the workforce (Barlow et al., 2001; Lipsky, 2000; Monjardino et al., 2011).

The relationship between persistent pain, stiffness, joint damage and physical disability has become well known. However, it seems that those symptoms also have important social and psychological implications (Keefe et al., 2002;

Newman et al., 1996). Actually, the inability to perform daily life routines has been described as a stress-induced experience (Newman et al., 1996). Some of this research has shown that the most difficult emotional consequence of RA is

¹Universidade de Coimbra, Portugal

²ISPA-IU, Portugal

Corresponding author:

Joana Costa, Centro de Investigação do Núcleo de Estudos e Intervenção Cognitivo Comportamental (CINEICC), Faculdade de Psicologia e Ciências da Educação, Universidade de Coimbra, Rua do Colégio Novo, Apartado 6153, 3001-802 Coimbra, Portugal.
Email: joanascosta@hotmail.com

the loss of control over one's life. Therefore, RA symptoms become a nuclear concern and individuals exclude other important aspects of life (McCracken et al., 2004a). Pain, stiffness and disability are major concerns for those with RA who look for medical assistance in order to relieve their pain and be able to perform their usual activities. Generally, RA patients struggle to control pain, without success, while being overwhelmed by their distressing thoughts, taking pain and related symptoms as barriers for living a meaningful life (McCracken and Eccleston, 2005).

Research shows high prevalence of psychiatric disorders in RA individuals (Covic et al., 2006; Dickens et al., 2002; Riemsma et al., 2000; Sharp et al., 2001). Regier et al. (1988) refer that depression is two to three times more common in patients with RA than in general population. In addition, a Canadian Community Health Survey ($n = 139,880$) found that individuals with RA have twice the rate of major depression and suicidal ideation when compared to individuals without RA. This research also showed that individuals who reported chronic pain, limitations in daily activities and multiple health problems were more likely to become depressed (Bèland, 2002).

Research in the surgical literature, particularly related with the joint replacement, has found that depression was a significant predictor of both pain and physical limitation (Wylde et al., 2007), but it was also associated with persistent postsurgical pain (Wylde et al., 2011).

It is important to notice that RA is characterized by fluctuating symptoms and an unpredictable course (Dickens et al., 2002). Diagnosis may remove the uncertainty of unexplained symptoms but also adds other sources of stress, such as the knowledge and understanding to make informed decisions concerning treatment options and to carry out self-care activities (Barlow et al., 1999).

Within the new developments of cognitive-behavioural therapy (CBT), it has been emphasized that efforts to control pain may become problematic when it became central and

disruptive and may dominate patient's life (McCracken et al., 2004a; McCracken and Yang, 2006). The combination of the processes of acceptance and mindfulness into cognitive-behavioural techniques (Hayes, 2004; Hayes et al., 1999) has highlighted the importance of contextual methods that emphasize the context, the function and the relationship that individuals establish with their thoughts and emotions (McCracken and Vowles, 2008; Singh et al., 2008).

A large body of research has also reinforced that these emotional regulation processes may buffer the impact of disease and provide support in times of adversity (Costa and Pinto-Gouveia, 2011a, 2011b). In the particular case of acceptance, a number of studies have shown that it is related not only with a better emotional, physical, social and work-related functioning, but also with less use of health-care resources, in both cross-sectional (McCracken, 1998, 2007) and longitudinal studies (McCracken and Eccleston, 2005; McCracken et al., 1999; McCracken and Vowles, 2007, 2008; Nicholas and Asghari, 2006; Vowles et al., 2007).

Acceptance is emerging as a potentially valuable concept on how patients react and adapt to chronic pain (McCracken, 1998; McCracken et al., 2004a, 2004b; Viane et al., 2003). It is defined as a construct with two components, which concern the engagement in life activities while pain is being experienced, and the recognition that attempts to control or avoid pain are ineffective strategies (Kashdan et al., 2008; Kollman et al., 2009; McCracken and Eccleston, 2003; McCracken et al., 2004b). This emotional regulation process involves one being experientially open to the present moment, promotes a change in the way symptoms are experienced and influence individuals' behaviour (Baer and Krietemeyer, 2006; Hayes et al., 1999; McCracken, 1999, 2005; McCracken et al., 2007; Vowles et al., 2008).

Acceptance is involved in both reaction and adaptation to chronic pain conditions such as RA (McCracken, 1998; McCracken et al., 2004b; Viane et al., 2003; Vowles et al., 2007).

Besides that, there is no research about how these patients function over the course of the disease and what factors are associated with such changes when they occur. There is a lack of published studies on the relation of acceptance in the progression of pain, physical limitation and depression in a Portuguese sample of patients with RA. Therefore, the aims of this exploratory study are as follows: (1) to examine pain, physical limitation and depression across the quasi-naturalistic course of RA disease, (2) to explore the association of acceptance in the initial levels of pain, physical limitation and depression, and (3) to explore the association between acceptance and the increase of pain, physical limitation and depressive symptomatology across the first 2 years of RA disease progression.

Our research hypotheses are as follows: (1) the pain levels, perceptions of physical limitations and depressive symptomatology will increase significantly across the progression of RA on a 2-year period; (2) the degree of pain acceptance will be significantly related with physical and psychological constructs at the baseline assessment such that individuals with higher acceptance would report less pain, less perceptions of physical impairment and less depression; furthermore, we also hypothesize that (3) the degree of pain acceptance will be significantly related with the progression of physical (i.e. pain and physical limitation) and psychological variables (i.e. depression) with participants with higher levels of acceptance showing lower rates of pain and physical limitation and depression over time.

Method

Participants

Participants from three Portuguese health units participated in the study ($N = 55$). Participants were 44 women and 11 men, with age ranging from 18 to 86 years ($M = 55.28$, standard deviation (SD) = 17.91) and a mean of 6.58 years of education ($SD = 4.10$). Inclusion criteria included the following: (1) being 18 years old or

older and (2) being diagnosed with RA between 3 and 6 months after the diagnosis (according to the American College of Rheumatology). Exclusion criteria included the following: (1) an identified terminal illness, (2) presence of severe psychopathology measured by psychiatric evaluation and (3) attending to psychological interventions.

Measures

All measures used in this study were translated and adapted to Portuguese by a bilingual translator. Conceptual and lexical similarities of both original and Portuguese versions were verified through reverse translation procedures.

Each participant completed a set of instruments that included several self-report questionnaires. Demographic variables were assessed with a general checklist including patient gender, age, marital status, profession, years of education and clinical diagnosis.

The Short-Form McGill Pain Questionnaire (MPQ; Melzack, 1987; translation and adaptation: Melzack, 2005) is a 15-item adjective checklist rated on a 4-point intensity scale (from 0 = None to 3 = Severe) (i.e. sensory and affective dimensions) as well as two single-item measures (i.e. visual analogue numerical scale and pain intensity). The MPQ has both a total score and partial scores, where high scores mean higher levels of pain. For the purposes of this study, only the adjective checklist was used. The internal consistency estimates for both sensory and affective dimensions were .78 and .76, respectively (Melzack, 1987).

The Arthritis Impact Measurement Scale-2 (AIMS2; Brandão et al., 1995; translation and adaptation: Costa and Pinto-Gouveia, 2005) is a 78-item self-report scale that assesses health status in a multidimensional fashion using specific scales. The scales of AIMS are scored in an inverse way, where low scores indicate better health status. The nine original scales of AIMS could be combined into three or five component models of health status. For the purpose of this study, only the physical function was used.

The Depression, Anxiety and Stress Scale (DASS; Lovibond and Lovibond, 1995; DASS-42: Pais-Ribeiro et al., 2004) is a 42-item self-report scale with three subscales: depression, anxiety and stress. A 4-point rating scale (1 = Did not apply to me; 4 = It happened most of the time) is used in each of the 42 items. Each subscale score may range from 0 to 42, where high scores mean higher negative emotional states. In the Portuguese adaptation, DASS-42, internal consistency was high (Cronbach's alpha ranged from .83 to .93; Pais-Ribeiro et al., 2004).

The Chronic Pain Acceptance Questionnaire (CPAQ; McCracken et al., 2004b; translation and adaptation: Costa and Pinto-Gouveia, 2009) is a 20-item self-report questionnaire rated on a 7-point Likert-type scale (from 0 = Never to 6 = Always) and measures acceptance to chronic pain. The questionnaire comprises two subscales: pain willingness and activity engagement. This questionnaire has both a total score (range from 0 to 156) and partial scores (range from 0 to 54, for pain willingness; 0 to 66, for activity engagement); higher scores mean high pain acceptance. Cronbach's alpha was .82 and .78 for both pain willingness and activity engagement. In addition, both scales showed a modest correlation: $r = .36$ (McCracken et al., 2004). The Portuguese version of CPAQ showed a Cronbach's alpha of .89 for activity engagement and .83 for pain willingness. In addition, moderate correlations between psychopathology, self-compassion, experiential avoidance and rumination were observed (Costa and Pinto-Gouveia, 2009).

Procedure

The study was conducted with the formal approval and authorization required by the participating institutions. If participants expressed interest, the researchers asked them to sign the informed consent form and gave them the questionnaire package. The evaluation took place in a physician's office. Accordingly with ethical requirements, it was emphasized that participant's cooperation was voluntary and that their answers were confidential.

Participants were evaluated at three different times: 3–6 months, 1-year and 2-year intervals after the first doctor's diagnosis. Each evaluation lasted between 60 and 120 minutes. Time between each evaluation was chosen based on the disease progression. Evaluations were conceptualized in order to understand how individuals interpret and understand their own symptoms, what theories they develop regarding the causes and treatments, and also what they are able to do about their symptoms and the progression of the disease (Newman et al., 1996).

Data analysis

This study has a longitudinal design with self-reported measures. Kolmogorov–Smirnov tests were used to inspect the normal distribution of all variables. Although some variables showed a statistically significant deviation from the normal distribution, close inspection of the skewness and kurtosis values (all within the $(-0.5, 0.5)$ interval) showed that this deviation was not problematic for further inferential analysis (Kline, 2005; Marôco, 2010; Tabachnick and Fidell, 2007).

The presence of multivariate outlier was assessed with the *Mahalanobis Distance* – DM^2 . No observations were deleted from the data set, because they could contain important information related to the studied phenomena.

Latent growth curve models (LGMs) were fitted to the longitudinal data, in order to study the progression of the pain and physical limitation perceptions and depression after accounting for individual differences in the disease status at baseline. A conditional LGM was also used to evaluate the impact of acceptance in the progression of pain, physical disability and depression.

Results

Data reliability

Spearman correlations showed that educational background was not correlated with the scores from the variables under study. In addition, the

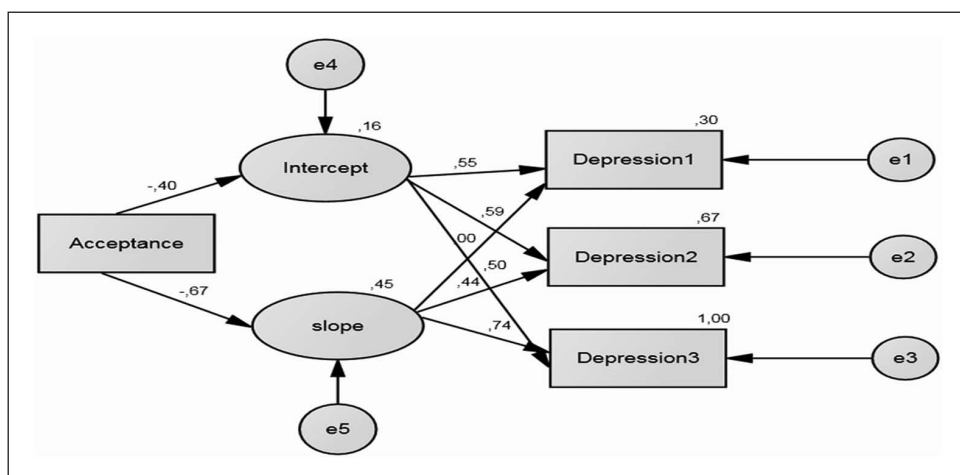


Figure 1. The influence of acceptance on depression growth rate.

Cronbach's alphas obtained in this study show the suitability of the measures (MPQ = .78; AIMS2 – Physical Function = .90; DASS-42 – Depression = .97; CPAQ total = .86).

Pain

The LGM was successfully fitted to the pain levels evaluated at the three assessment moments ($\chi^2/df = 2.679$; comparative fit index (CFI) = .948; normed fit index (NFI) = .924).

Basal levels of pain differed significantly between participants around a mean level of 6.934 ($SD^2(\text{basal levels}) = 23.542$; $Z = 2.252$; $p = .024$). From the baseline to the following 2 years, the pain levels increased linearly at a mean rate of 1.224/month ($Z = 2.48$; $p = .013$). This increase rate was homogenous among participants as indicated by the no significant variance around the mean growth ($SD^2(\text{slope}) = 8.122$; $Z = 1.777$; $p = .076$). These results showed that the evolution of pain did not differ significantly among the participants. The rate of pain growth showed tendencies towards negative significance with the baseline pain levels ($r = -.401$, $p = .293$).

A conditional model was fitted to data in order to evaluate the impact of acceptance on the evolution of pain symptoms (see Figure 1).

Acceptance showed a significant negative impact on the baseline pain levels ($\beta = -.859$; $p < .001$), indicating that individuals with higher acceptance did report less pain. However, the rate of pain growth between baseline and the following 2 years was not significantly associated with acceptance ($\beta = .015$; $p = .947$). Therefore, acceptance was not a significant predictor of the individual differences in pain growth among individuals.

Physical limitation

The LGM was successfully fitted to physical limitation levels at the three assessment moments ($\chi^2/df = 2.671$; CFI = .903, NFI = .858).

Basal levels of physical limitation differed significantly between participants around a mean level of 10.777 ($SD^2(\text{basal levels}) = 3.448$; $Z = 2.688$; $p = .007$). The physical limitation levels increase linearly at a mean of .746 per month ($Z = 4.155$; $p = .000$) between baseline and after 2 years. This increase rate was not homogenous among participants as indicated by the significant variance around the mean growth ($SD^2(\text{slope}) = 1.292$; $Z = 3.320$; $p < .001$). These results showed that the evolution of physical limitation differed significantly

between participants. In addition, the rate of physical limitation growth was negatively correlated with the baseline physical limitation levels ($r = -.612$; $p = .045$). This negative correlation suggests that participants with higher physical limitation levels at the baseline increased their physical limitation at a lower rate than participants with lower physical limitation levels. A conditional model was fitted to the data to evaluate the impact of acceptance on physical limitations.

Acceptance showed a statistically significant negative impact on the baseline physical limitation levels ($\beta = -.943$; $p < .001$). This result shows that individuals with higher scores of acceptance did report less physical limitation. In contrast, the physical limitation growth between baseline and 2 years after was not significantly associated with acceptance ($\beta = -.054$; $p = .806$). Acceptance did not explain why physical limitation increased differently between participants.

Depression

The LGM was successfully fitted to the depression levels evaluated at the three assessment moments ($\chi^2/df = .395$; CFI = 1.000; NFI = .988; root mean square error of approximation (RMSEA) = .000).

Basal levels of depression were homogenous between participants ($SD^2(\text{basal levels}) = 15.897$, $Z = 1.247$; $p = .213$). The depression levels showed a tendency to increase linearly between the baseline and after 2 years at a mean rate of 1.154/month ($Z = 1.880$; $p = .060$). This increase rate was not homogenous among participants as shown by the significant variance around the mean growth ($SD^2(\text{Slope}) = 11.031$; $Z = 2.533$; $p = .011$). These results showed that the evolution of depression differed significantly between participants. The rate of depression growth showed a tendency to positive correlation with the baseline depression levels ($r = .705$, $p = .120$). The conditional model showed that acceptance had a statistically significant negative effect on the basal depression

levels ($\beta = -.398$; $p = .052$) (see Figure 1). Thus, participants with higher levels of acceptance did report less depression levels. Furthermore, acceptance had a statistically significant negative effect associated with the rate of depression growth between the baseline and 2 years after ($\beta = -.674$; $p < .001$) indicating that participants with higher levels of acceptance reported a lower rate of depression growth across time.

Discussion

This study examined pain, physical limitation and depression across the quasi-naturalistic progression of disease in a sample from the Portuguese population with RA. Furthermore, this study intended to explore the potential association between acceptance and the initial levels of pain, physical limitation and depression. Finally, it also intended to explore the association between acceptance and the progression of pain, physical limitation and depression across the first 2 years of the RA disease.

In accordance with our first hypothesis, we found that pain, physical limitation perceptions and depression increase significantly over the first 2 years of the RA progression. Current data were consistent with previous research showing that individuals with RA face the prospect of a life with increasing pain and disability (Newman et al., 1996). It is also well known that in the first year of the disease, functional disability is determined and progressively deteriorates with the disease progression (Evers et al., 2003; Newman et al., 1996; Repping-Wuts et al., 2008).

LGM results showed that evolution of physical limitation perceptions differed significantly between participants. So, individuals with higher physical limitation scores at the baseline assessment were those who present a smaller progression of these symptoms over time.

Taking into account the data presented in this study and previous research findings that suggest acceptance as an important process involved in the way individuals react and adapt

to chronic pain (McCracken, 1998; McCracken et al., 2004b; Viane et al., 2003; Vowles et al., 2007), conditional LGM were used to further investigate the hypothesis that acceptance is positively associated with these variables (i.e. pain, physical limitation and depression).

Acceptance showed a significant negative association with the baseline scores of pain and physical limitation, but the rate of pain and physical limitation growth from the baseline to the following 2 years was not significantly related with acceptance. This means that participants with higher scores of acceptance in the baseline reported lower scores of pain and physical limitation, compared to those with lower levels of acceptance. However, acceptance did not explain why pain and physical limitation increased differently between the participants.

LGM findings from both group and individual perspectives gathered in this study are in accordance with previous research in chronic pain with other statistical approaches, suggesting a promotion of physical functioning in individuals who adopt an open attitude and observe unwanted experiences without trying to modify, control or avoid them (McCracken, 1998; McCracken and Eccleston, 2005; McCracken et al., 2004a; McCracken and Yang, 2006; Viane et al., 2003).

Our results also suggest that an attitude of willingness to face unwanted internal experiences at the early stages of the RA influences the level of pain and physical limitation reported at this time of RA progression. Individuals who recognize that they have pain and physical limitation, but act as if these unwanted internal experiences do not necessarily imply disability, seem to be those who live a more fulfilling life in accordance with their goals and values (McCracken, 1998; McCracken and Eccleston, 2005; McCracken et al., 2004a; McCracken and Yang, 2006; Viane et al., 2003). It is important to notice that the association between acceptance and the baseline reports may lead to a higher effect size of acceptance in the first evaluation (3–6 months after RA) than in the following evaluation moments.

Simultaneously, we also hypothesized that depression would increase significantly over the 2 years progression of RA. Again, our findings were consistent with our hypothesis: LGM results showed different levels of growth between the baseline and 2 years later, despite no differences in baseline scores of depression were reported.

Results also showed that participants with higher scores of willingness to perform daily activities and who recognize the ineffectiveness of attempts to control or avoid unwanted internal experiences reported lower depressive symptoms at the baseline assessment. Moreover, the negative association of acceptance and the rate of depression growth showed that participants with higher levels of acceptance between the baseline and the following 2 years presented a lower rate of depression growth over time.

These associations of acceptance have never been tested in Portuguese RA patients with LGM. However, these results are consistent with previous cross-sectional studies, suggesting the importance of acceptance-based approaches in several chronic pain conditions (McCracken, 1998, 1999, 2005; McCracken et al., 2004a). The higher levels of depression in RA individuals than in the general population (Covic et al., 2006; Creed, 1990; Dickens et al., 2002; Katz and Yelin, 1993; Mindham et al., 1981; Pincus et al., 1996; Regier et al., 1988; Sharp et al., 2001) has suggested important mechanisms between depression and acceptance.

One possible mechanism of the association between depression and acceptance might be the fact that acceptance promotes the contact with the present moment, allowing the individual to take better advantage of its positive processes such as the interactions with family members. According to Costa and Pinto-Gouveia (2013), acceptance seems to play a significant buffer effect on the relationship between social support 1 year after RA diagnosis and depression reported 2 years after. According to Costa and Pinto-Gouveia (2013), it is mainly in individuals with low levels of acceptance and low social support that depression levels are greater,

because they are fused to the evaluations of themselves as a disabled, limited or dependent person. In addition, Kool et al. (2013) suggested that the promotion of health in RA individuals requires that social support must be considered as a main goal in clinical intervention.

Surgical literature particularly related with joint replacement has also found that depression is a significant predictor of persistent pain and physical limitation (Wylde et al., 2011). However, the co-occurrence of multiple-site persistent pain leads to the identification of a possible chronic pain syndrome, based on a generalized vulnerability to pain (Wylde et al., 2007).

Results gathered in this research have important clinical implications and are encouraging for further developments of acceptance-based approaches in the RA context. In general, individuals who actually engage in positive and functional everyday activities despite of pain and recognize that avoiding or controlling it are ineffective strategies were those who used the health-care system less, who were least distressed and disabled by their condition and were also the ones most likely to be working (McCracken et al., 2004b). The change in the relationship that individuals have with unwanted internal experiences enable them to act effectively and to promote a broader repertoire of response to the experience of pain and associated symptoms (Dahl et al., 2004; McCracken et al., 2005).

The findings presented here are not free of some methodological limitations. First, the use of such a complex statistical procedure with a small sample has been involved in controversies, although Monte Carlo simulations have demonstrated that the LGM holds up well with relatively small samples (Muthén and Muthén, 2002). Moreover, the measures used in this study showed good psychometric properties, there were no missing data and the modelled variables were based on the sum of the items from the respective scales. Second, our data were gathered through patients' self-reports. The indirect nature of this assessment method

allows for a number of factors to contribute to the patients responses on the questionnaires. A possible solution to address the limitations of retrospective self-report and to reduce extraneous influence on the data is the use of self-monitoring, laboratory methods or methods in treatment contexts that measure patient behaviour in the setting and at the time that it occurs in future research.

Conclusion

Taking into account the results of this study, the depression rate of growth can be predicted by the patient's levels of acceptance. Therefore, patients with high acceptance present smaller growth rates of depression across time than patients with low acceptance, even when pain and physical limitations are increasing. The road to psychological health, specifically the case of RA, seems to involve consistently orienting these patients towards living a more valued life, helping them to let go of the struggle with disease and to start living here and now.

Funding

Preparation of this manuscript was supported in part by the Individual Post-Doctoral Fellowship (SFRH/BPD/78227/2011) of the second author (Joana Costa) provided by Fundação para a Ciência e Tecnologia, a Portuguese foundation which promotes the advancement of scientific and technological knowledge.

References

- Baer R and Krietemeyer J (2006) Overview of mindfulness and acceptance-based treatment approaches. In: Baer R (ed.) *Mindfulness-Based Treatment Approaches. Clinician's Guide to Evidence Base and Application*. San Jose, CA: Academic Press, pp. 3–27.
- Barlow J, Cullen L and Rowe I (1999) Comparison of knowledge and psychological well-being between patients with a short disease duration (≤ 1 year) and patients with more established rheumatoid arthritis (≥ 10 years duration). *Patients Education and Counseling* 38: 195–203.

- Barlow J, Wright C and Kroll T (2001) Overcoming perceived barriers to employment among people with arthritis. *Journal of Health Psychology* 6: 205–216.
- Béland Y (2002) Canadian community health survey – Methodological overview. *Health Report* 13: 9–14.
- Brandão L, Zerbini M and Ferraz C (1995) The Arthritis Impact Measurement Scales 2. Tradução e adaptação para a população brasileira. Unpublished manuscript.
- Costa J and Pinto-Gouveia J (2005) Portuguese adaptation of the Arthritis Impact Measurement Scale 2. Unpublished manuscript.
- Costa J and Pinto-Gouveia J (2009) Aceitação da Dor. Abordagem psicométrica do *Chronic Pain Acceptance Questionnaire* numa amostra portuçuom dor crónica [Acceptance of pain. Psychap-proach of chronic pain acceptance questionnaire on a Portuguese sample of chronic pain]. *Revista Psicologia*, 23 (1), 103–126
- Costa J and Pinto-Gouveia J (2011a) Acceptance of pain, self-compassion and psychopathology: Using the chronic pain acceptance questionnaire to identify patients' subgroups. *Clinical Psychology & Psychotherapy* 18(4): 292–302.
- Costa J and Pinto-Gouveia J (2011b) The mediation effect of experiential avoidance between coping and psychopathology in chronic pain. *Clinical Psychology & Psychotherapy* 18(1): 34–47.
- Costa J and Pinto-Gouveia J (2013) A new approach to explain the link between social support and depression in a 2-year arthritis rheumatoid sample. Is there any moderation effect of acceptance? *International Journal of Psychology and Psychological Therapy* 13: 65–82.
- Covic T, Tyson G, Spencer D, et al. (2006) Depression in rheumatoid arthritis patients: Demographic, clinical, and psychological predictors. *Journal of Psychosomatic Research* 60: 469–476.
- Creed F (1990) Psychological disorders in rheumatoid arthritis: A growing consensus. *Annals of the Rheumatic Diseases* 49: 808–812.
- Dahl J, Wilson K and Nilsson A (2004) Acceptance and commitment therapy and the treatment of persons at risk for long term disability resulting from stress and pain symptoms: A preliminary randomized trial. *Behavior Therapy* 35: 785–801.
- Dickens C, McGowan L, Clark-Carter D, et al. (2002) Depression in rheumatoid arthritis: A systematic review of the literature with meta-analysis. *Psychosomatic Medicine* 64: 52–60.
- Evers A, Kraaimaat F, Geenen R, et al. (2003) Pain coping and social support as predictors of long-term functional disability and pain in early rheumatoid arthritis. *Behaviour Research and Therapy* 41: 1295–1310.
- Hayes S (2004) Acceptance and commitment therapy, relational frame theory, and the third wave of behavioral and cognitive therapies. *Behavior Therapy* 35: 639–665.
- Hayes S, Strosahl K and Wilson K (1999) *Acceptance and Commitment Therapy: An Experiential Approach to Behaviour Change*. New York: The Guilford Press.
- Kashdan T, Morina N and Priebe S (2008) Post-traumatic stress disorder, social anxiety disorder, and depression in survivors of the Kosovo War: Experiential avoidance as a contributor to distress and quality of life. *Journal of Anxiety Disorders* 23: 185–196.
- Katz P and Yelin E (1993) Prevalence and correlates of depressive symptoms among persons with rheumatoid arthritis. *The Journal of Rheumatology* 20: 790–796.
- Keefe F, Buffington A, Studts J, et al. (2002) Recent advances and future directions in the biopsychosocial assessment and treatment of arthritis. *Journal of Consulting and Clinical Psychology* 70: 640–655.
- Kline R (2005) *Principles and Practice of Structural Equation Modeling*. New York: The Guilford Press.
- Kollman D, Brown T and Barlow D (2009) The construct validity of acceptance: A multitrait-multimethod investigation. *Behavior Therapy* 40: 205–218.
- Kool M, van Middendorp H, Lumley L, et al. (2013) Social support and invalidation by others contribute uniquely to the understanding of physical and mental health of patients with rheumatic diseases. *Journal of Health Psychology* 18: 86–95.
- Lipsky P (2000) Artrite Reumatóide. In: Isselbacher K, Braunwold E, Wilson J, et al. (eds) *Harrison Medicina Interna*. Lisboa: McGraw-Hill, pp. 1725–1739.
- Lovibond P and Lovibond H (1995) The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with beck depression and anxiety inventories. *Behavioral Research and Therapy* 3: 335–343.

- McCracken L (1998) Learning to live with pain: Acceptance of pain predicts adjustment in persons with chronic pain. *Pain* 74: 21–27.
- McCracken L (1999) Behavioral constituents of chronic pain acceptance: Results from factor analysis of the chronic pain acceptance questionnaire. *Journal of Back and Musculoskeletal Rehabilitation* 13: 93–100.
- McCracken L, Vowles K and Eccleston C (2004b) Acceptance of chronic pain: Component analysis and a revised assessment method. *Pain* 107: 159–166.
- McCracken L (2005) *Contextual Cognitive-Behavioral Therapy for Chronic Pain*, vol. 33. Seattle, WA: IASP Press.
- McCracken L (2007) A contextual analysis of attention to chronic pain: What the patient does with their pain might be more important than their awareness or vigilance alone. *The Journal of Pain* 8: 230–236.
- McCracken L and Eccleston C (2003) Coping or acceptance: What to do about chronic pain? *Pain* 105: 197–204.
- McCracken L and Eccleston C (2005) A prospective study of acceptance of pain and patient functioning with chronic pain. *Pain* 118: 164–169.
- McCracken L and Vowles K (2007) Psychological flexibility and traditional pain management strategies in relation to patient functioning with chronic pain: An examination of a revised instrument. *The Journal of Pain* 9: 700–707.
- McCracken L and Vowles K (2008) A prospective analysis of acceptance of pain and values-based action in patients with chronic pain. *Health Psychology* 27: 215–220.
- McCracken L and Yang S (2006) The roles of values in a contextual cognitive-behavioral approach to chronic pain. *Pain* 123: 137–145.
- McCracken L, Carson J, Eccleston C, et al. (2004a) Acceptance and change in the context of chronic pain. *Pain* 109: 4–7.
- McCracken L, Gauntlett-Gilbert J and Vowles K (2007) The role of mindfulness in a contextual cognitive analysis of chronic pain-related suffering and disability. *Pain* 131: 63–69.
- McCracken L, Spertus I, Janeck A, et al. (1999) Behavioral dimensions of adjustment in persons with chronic pain: Pain-related anxiety and acceptance. *Pain* 80: 283–289.
- McCracken L, Vowles K and Eccleston C (2004b) Acceptance of chronic pain: Component analysis and a revised assessment method. *Pain* 107: 159–166.
- McCracken L, Vowles K and Eccleston C (2005) Acceptance-based treatment for persons with complex, long standing chronic pain: A preliminary analysis of treatment outcome in comparison to a waiting phase. *Behaviour Research and Therapy* 43: 1335–1346.
- Marôco J (2010) *Análise Estatística. Com o PASW Statistics (ex-SPSS)*. Pêro Pinheiro: SPSS.
- Melzack R (1987) The short-form McGill Pain Questionnaire. *Pain* 30: 191–197.
- Melzack R (2005) Short-form McGill Pain Questionnaire. Unpublished manuscript.
- Mindham R, Bagshaw A, James A, et al. (1981) Factors associated with the appearance of psychiatric symptoms and rheumatoid arthritis. *Journal of Psychosomatic Research* 25: 429–435.
- Monjardino T, Lucas R and Barros H (2011) Frequency of rheumatic diseases in Portugal: A systematic review. *Acta Reumatologica Portuguesa* 36: 336–363.
- Muthén L and Muthén B (2002) How to use a Monte Carlo study to decide on sample size and determine power. *Structural Equation Modeling* 9: 599–620.
- Newman S, Fitzpatrick R, Revenson R, et al. (1996) *Understanding Rheumatoid Arthritis*. London: Routledge.
- Nicholas M and Asghari A (2006) Investigating acceptance in adjustment to chronic pain: Is acceptance broader than we thought? *Pain* 124: 269–279.
- Pais-Ribeiro J, Honrado A and Leal I (2004) Contribuição para o estudo da adaptação portuguesa das escalas de depressão ansiedade stress de Lovibond e Lovibond. *Psychologica* 36: 235–246.
- Pincus T, Griffith J, Pearce S, et al. (1996) Prevalence of self-reported depression in patients with rheumatoid arthritis. *Journal of British Rheumatology* 35: 879–883.
- Regier D, Boyd J, Burke J, et al. (1988) One-month prevalence of mental disorders in the United States. Based on five epidemiologic catchment area sites. *Archives of General Psychiatry* 45: 977–986.
- Repping-Wuts H, Uitterhoeve R, Riel P, et al. (2008) Fatigue as experience by patients with rheumatoid arthritis (RA): A qualitative study. *International Journal of Nursing Studies*. DOI: 10.1016/j.ijnurstu.2007.06.007.

- Riemsma R, Taal E, Wiegman O, et al. (2000) Problematic and positive support in relation to depression in people with rheumatoid arthritis. *Journal of Health Psychology* 5: 221–230.
- Sharp L, Sensky T and Allard S (2001) The course of depression in recent onset rheumatoid arthritis: the predictive role of disability, illness perceptions, pain and coping. *Journal of Psychosomatic Research* 51: 713–719.
- Singh N, Lancioni G, Wahler R, et al. (2008) Mindfulness approaches in cognitive behavior therapy. *Behavioural and Cognitive Psychotherapy* 36: 659–666.
- Tabachnick B and Fidell L (2007) *Using Multivariate Statistics*. New York: Pearson Education Inc.
- Viane I, Crombez G, Eccleston C, et al. (2003) Acceptance of pain is an independent predictor of mental well-being in patients with chronic pain: Empirical evidence and reappraisal. *Pain* 106: 65–72.
- Vowles K, McCracken L and Eccleston C (2008) Patient functioning and catastrophizing in chronic pain: The mediating effects of acceptance. *Health Psychology* 27(2 Suppl.): S136–S143.
- Vowles K, McNeil D, Gross R, et al. (2007) Effects of pain acceptance and pain control strategies on physical impairment in individuals with chronic low back pain. *Behavior Therapy* 38: 412–425.
- Wylde V, Dieppe P, Hewlett S, et al. (2007) Total knee replacement: Is it really an effective procedure for all? *The Knee* 14: 417–423.
- Wylde V, Hewlett S, Learmonth I, et al. (2011) Persistent pain after joint replacement: Prevalence, sensory qualities, and postoperative determinants. *Pain* 152: 566–572.