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New empirical evidence of the validity of the Chronic Pain Acceptance Questionnaire: The differential influence of activity engagement and pain willingness on adjustment to chronic pain

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Objective. The aims of this study were to examine the internal structure of the Spanish version of the Chronic Pain Acceptance Questionnaire and present new empirical evidence regarding its validity.

Design and Methods. A sample of 315 chronic pain patients attending a pain clinic completed a battery of instruments to assess pain acceptance, general psychological acceptance, depression, anxiety, pain intensity, functional impairment, and current functioning.

Results. Confirmatory factor analysis supported the validity of a 20-item version with two subscales corresponding to two independent factors: Activity Engagement and Pain Willingness. Structural Equation Modelling showed that the association between pain intensity and anxiety and depression was fully mediated by Activity Engagement which partially mediated the association between pain intensity and functioning. Pain Willingness partially mediated the influence of pain intensity on functional impairment.

Conclusions. These findings indicate the differential influence of both components on adjustment to chronic pain.

Acceptance is of central importance in adjustment to chronic pain. It is a process within the broader process of psychological flexibility which also includes contact with the present moment, values-based action, committed action, self-as-context, and cognitive defusion (Hayes, Luoma, Bond, Masuda, & Lillis, 2006; McCracken & Velleman, 2010). Acceptance of chronic pain has two associated components: Pain Willingness, understood as responding to pain-related experiences without attempts at control or

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avoidance; and Activity Engagement, understood as engaging in normal life activities even if pain is present (McCracken, 2010). Greater acceptance is associated with reports of lower pain intensity and enhanced emotional and physical functioning in clinical samples (Esteve, Ramírez-Maestre, & López-Martinez, 2007; Ferreira, Pais & Jensen, 2009; Mason, Mathias, & Skevington, 2008; McCracken, 1998; McCracken & Samuel, 2007; McCracken, Spertus, Janeck, Sinclair, & Wetzel, 1999; McCracken, Vowles, & Eccleston, 2004, 2005; Viane, Crombez, Eccleston, Devulder, & De Corte, 2004; Viane *et al*., 2003; Vowles & McCracken, 2008, 2010; Vowles *et al*., 2007; Vowles, McCracken, McLeod, & Eccleston, 2008; Wicksell, Olsson, & Melin, 2009).

The Chronic Pain Acceptance Questionnaire (CPAQ; McCracken *et al*., 2004) is a 20-item scale assessing acceptance of pain; it consists of two subscales: Activity Engagement and Pain Willingness. Several studies (Fish, McGuire, Hogan, Morrison, & Stewart, 2010; Nilges, Koster, & Schmidt, 2007; Vowles *et al*., 2008; Wicksell *et al*., 2009) have supported the validity of a factor solution composed of two associated factors, whereas the Chinese (Ning, Ming, Mae, & Ping, 2008) and Spanish (Rodero *et al*., 2010) versions supported the validity of a factor solution made up of two independent factors. Some studies have failed to obtain conclusive results on the association of the Pain Willingness subscale with adjustment (Nicholas & Asghari, 2006; Wicksell *et al*., 2009). Further research on the relationship between each subscale and adjustment is needed.

Several authors (McCracken & Eccleston, 2005; Reneman, Dijkstra, Geertzen, & Dijkstra, 2010) have emphasized that the theoretical definition of chronic pain acceptance should be the main framework to improve the CPAQ and to integrate the results from different studies that use disparate methodologies. Thus, research on the association between acceptance related to chronic pain and general psychological acceptance is of special interest (Reneman *et al*., 2010). Recently, McCracken and Zhao-O'Brien (2010) found that pain acceptance accounted for an average of 24% of the explained variance in adjustment and that general acceptance significantly increased this percentage.

A preliminary study (Esteve *et al*., 2004) using the Spanish version of the CPAQ (CPAQ-SV) was conducted in a sample of chronic pain patients. Two recent studies on samples of fibromyalgia patients that applied an exploratory factor analysis supported the validity of the two-factor structure of the CPAQ-SV (González, Fernández, & Torres, 2010; Rodero *et al*., 2010). The questionnaire showed good internal consistency although the authors did not report on the internal consistency of each subscale. Further research is needed on the psychometric properties of the CPAQ-SV.

The purpose of this study was to present new empirical evidence of the CPAQ-SV regarding its validity in a large heterogeneous sample of patients with chronic pain; more specifically: (a) to examine the internal structure of the CPAQ-SV; (b) to assess its criterion validity by examining the association of each subscale of the CPAQ-SV with adjustment to chronic pain; and (c) to investigate the relative capacity of general acceptance and the components of chronic pain acceptance to influence patient adjustment.

Methods

Participants

The participants consisted of a consecutive sample of 315 chronic pain patients (236 women and 79 men), who attended the Clinical Pain Unit at the Carlos Haya University Regional Hospital in Málaga (Spain). Individuals were considered eligible for the study as

follows: they had experienced pain for at least 3 months; they had a pain intensity score of at least 3 on a numerical composite pain intensity score (Jensen, Turner, Romano & Fischer, 1999); they had continuous pain or intermittent pain if it occurred for 5 or more days per week; and they were not being treated for a terminal illness. None of the patients refused participation. The average age was 53 years ($SD = 11.77$). At the time of the study, 69.6% were married or cohabiting and 54.5% were retired due to pain. A total of 21.1% had completed high-school education and 17.9% had a university degree. The median pain duration was 10 years and 7 months, and the diagnoses were as follows: arthropathy (23.6%), neck pain (8.5%), lower-back pain (16.2%), fibrosis (2.3%), headache (1.9%), neuralgia (3.5%), neuropathic pain (18.1%), full-body pain (12%), lower limb pain (7.7%), upper limb pain (7.7%), and other diagnoses (5.8%). This sample was used to examine the factor structure of the questionnaire and met the recommended 10:1 ratio of the number of subjects to the number of test items (Kline, 2005). The criterion validity of the instrument was examined in a subset of the original sample. A previous study has shown that in relation to demographic and clinical variables this sample can be considered representative of all the patients who attend this clinic and other Spanish Pain Units (Casals & Samper, 2004).

Procedure

This study, which forms part of a larger research project, was approved by the Carlos Haya Hospital Ethics Committee. Informed consent was obtained prior to data collection. Participants were aware that the information collected was confidential. All participants had a semi-structured interview with a psychologist to collect relevant demographic and social information and their medical history. A battery of questionnaires, including the measures described in the following sections, was also completed by each participant.

Measures

Pain acceptance

The Spanish version of the CPAQ (Esteve *et al*., 2004), which was originally created by McCracken *et al*. (2004), was applied. The instrument is made up of 20 items that are rated on a 0 (never true) to 6 (always true) scale. Like the original questionnaire, the CPAQ-SV yields a total score and two subscale scores for Pain Willingness and Activity Engagement. The maximal possible total score is 120, with a higher score indicating better acceptance. In the initial validation study of the Spanish version (Esteve *et al*., 2004), the total scale showed appropriate internal consistency ($\alpha = .83$). Several studies support the reliability and validity of the questionnaire (for a review, see Reneman *et al*., 2010).

General acceptance

The Spanish version of the Acceptance and Action Questionnaire (AAQ; Hayes *et al*., 2004) was used to assess general psychological acceptance. The Spanish version of the AAQ (Barraca, 2004) follows Hayes *et al*. (2004) recommendations and consists of nine items. Participants are asked to rate each statement on a scale from 1 (never true) to 7 (always true). Higher scores indicate higher levels of psychological acceptance. The Spanish version showed appropriate internal consistency ($\alpha = .74$) and good test–retest reliability (Barraca, 2004).

Anxiety and depression

The Hospital Anxiety and Depression Scale (HADS) is a 14-item, self-reporting scale that contains two 7-item Likert scales, one for anxiety and one for depression (Zigmond & Snaith, 1983). Higher scores on the anxiety and depression scales indicate higher levels of anxiety and depression, respectively. The Spanish version of the scale shows appropriate reliability and validity (Quintana, Padierna, & Esteban, 2003). The internal consistency of both scales is high ($\alpha = .86$).

Functioning and functional impairment

The Impairment and Functioning Inventory (IFI) (Ramírez-Maestre, Esteve, & López-Martínez, 2004) is composed of 30 items each referring to an activity related to one of the following areas: household, autonomous behaviour, leisure, and social relationships. First, the patients are asked whether they performed an activity during the previous week. If they have, they are asked about frequency, but if they have not, they are asked whether they practiced this activity before suffering chronic pain. This approach differentiates between present functioning and impairment and is useful in assessing patients with a long history of pain where the degree of deterioration is at least as informative as the current level of functioning. The instrument provides an index of functioning, an index of impairment, and scores for each of these areas. The subscales and global scales are very reliable (functional status, $\alpha = .84$; functional impairment, $\alpha = .85$). Factor analytic techniques supported the validity of the hypothesized internal structure.

Pain intensity

Patients were asked to rate their highest, average, and lowest level of pain over the past 2 weeks, as well as their current pain, on 0–10 scales, with a '0' indicating 'no pain' and '10' indicating pain as 'intense as you could imagine'. A composite pain intensity score was calculated for each subject by averaging the highest, average, lowest, and current level of pain. Jensen *et al*. (1999) showed that composites of 0–10 ratings are very reliable measures of pain intensity in chronic pain patients.

Data analyses

The first aim of the study was to examine the internal structure of the CPAQ-SV. A confirmatory factor analysis was performed via Structural Equation Modelling (SEM), using EQS 6.1 software package (Bentler, 2006). Analyses were performed on the polychoric correlation matrix of the CPAQ-SV items using the Maximum Likelihood and the Robust estimation method. The goodness-of-fit indexes were Satorra-Bentler chi-square (Bentler, 2006), the Comparative Fit Index (CFI; Bentler, 1990), the Non-normed Fit Index (NNFI; Bentler & Bonnet, 1980), and the root mean-square error of approximation (RMSEA). Satorra-Bentler chi-square is a chi-square fit index that corrects the statistic under distributional violations; to reduce the sensitivity of chi-square to sample size, the index is divided by the degrees of freedom (Bentler, 2006). Ratios of 3 or smaller are indicative of an acceptable fit of the model (Kline, 2005). The CFI and NNFI measure the proportional improvement in fit by comparing a hypothesized model with the null model as baseline model. The CFI and NNFI range from 0 (absolute lack of fit) to 1 (perfect fit) and fit is considered to be good when the values are more

Table 1. Confirmatory factor analysis of the CPAQ-SV. Goodness-of-fit indexes

	χ^2/ df*	NNFI	CFI	RMSEA
One factor	4.96	.55	.60	.11
Two related factors	2.22	.91	.92	.06
Two independent factors	2.23	.92	.93	.06

Note. NNFI, non-normed fit index; CFI, comparative fit index; RMSEA, root mean-square error of approximation.*χ^2/ df, Satorra-Bentler chi-square divided by degrees of freedom.

than .90 (Hu & Bentler, 1999). The RMSEA is an absolute misfit index; the closer to zero, the better the fit. Values less than .08 indicate an adequate fit and values less than .06 indicate a good fit (Hu & Bentler, 1998, 1999). To explore the internal consistency of the CPAQ-SV, Cronbach's alpha and the corrected item-factor correlations were calculated.

The second aim was to assess its criterion validity by examining the association of each subscale of the CPAQ-SV with adjustment to chronic pain. To accomplish this, correlation analyses were performed.

The last purpose was to investigate the relative capacity of general acceptance and the components of chronic pain acceptance to influence patient adjustment. A path analysis via SEM was conducted. Analyses were performed on the polychoric correlation matrix of the variables included in the hypothetical model using the Maximum Likelihood and the Robust estimation method.

Results

Factorial structure, internal consistency, and corrected item-factor correlations

Using the whole sample, confirmatory factor analysis was performed to examine the validity of the two-factor structure (McCracken *et al*., 2004) using two alternative versions: related and independent factors. For purposes of comparison, a one-factor model in which all the items were specified to a single factor was also estimated. The one-factor structure failed to meet the recommended cut-off criteria. The two related factors model was tested, but factor covariance was not significant ($r = .04$; $p > .05$). The two independent factors model had the best overall fit and was the most parsimonious. Table 1 shows all the goodness-of-fit indexes (GFIs) of the three tested models. The factor loadings are shown in Table 2, all were significant ($p < .05$).

The CPAQ-SV consists of 20 items with two independent subscales which, showed good internal consistency (Activity Engagement, $\alpha = .85$; Pain Willingness, $\alpha = .75$). As shown in Table 2, most of the corrected item-factor correlations were appropriate.

Validity evidences of CPAQ-SV

Correlation analyses

The relationship of the two subscales of the CPAQ-SV to adjustment to chronic pain was examined in a subgroup of 86 individuals from the original sample. Criterion variables were: Depression ($M = 18.77$, $SD = 6.19$), Anxiety ($M = 16.40$, $SD = 16.35$), Functional Impairment ($M = 4.74$; $SD = 6.81$), Functioning ($M = 37.80$, $SD = 16.35$), and Pain Intensity ($M = 7.04$, $SD = 1.88$).

Table 2. Means (*M*), standard deviations (*SD*), corrected item-factor correlations and factor loadings of the items of the CPAQ-SV

	M	*SD*	Corrected item-factor correlations	Factor loadings
Factor I: Activity engagement				
1. I am getting on with the business of living no matter what my level of pain is.	4.05	1.92	.61	.71
2. My life is going well, even though I have chronic pain.	2.74	2.13	.63	.71
3. It's OK to experience pain.	1.40	1.97	.39	.37
5. It's not necessary for me to control my pain in order to handle my life well.	2.47	2.19	.37	.37
6. Although things have changed, I am living a normal life despite my chronic pain.	3.47	2.16	.72	.83
8. There are many activities I do when I feel pain.	3.61	2.13	.64	.74
9. I lead a full life even though I have chronic pain.	2.85	2.19	.66	.76
10. Controlling pain is less important than any other goals in my life.	2.79	2.15	.32	.29
12. Despite the pain, I am now sticking to a certain course in my life.	4.09	1.97	.57	.64
15. When my pain increases, I can still take care of my responsibilities.	2.85	2.07	.53	.56
19. It's a relief to realize that I don't have to change my pain to get on with my life.	2.52	2.12	.53	.57
Factor II: Pain willingness				
4. I would gladly sacrifice important things in my life to control this pain better.	3.45	2.43	.71	.73
7. I need to concentrate on getting rid of my pain.	3.46	2.10	.57	.56
11. My thoughts and feelings about pain must change before I can take important steps in my life.	3.12	2.00	.30	.17
13. Keeping my pain level under control takes first priority whenever I'm doing something.	3.55	2.33	.72	.84
14. Before I can make any serious plans, I have to get some control over my pain.	3.63	2.33	.68	.75
16. I will have better control over my life If I can control my negative thoughts about pain.	3.42	2.13	.46	.38
17. I avoid putting myself in situations where my pain might increase.	3.60	2.31	.62	.70
18. My worries and fears about what pain will do to me are true.	3.25	2.24	.29	.17
20. I have to struggle to do things when I have pain.	4.93	1.59	.26	.31

Activity Engagement and Pain Willingness showed moderate significant negative correlations with pain intensity, depression, anxiety, and functional impairment. As shown in Table 3, Activity Engagement showed higher correlations than Pain Willingness with the criterion variables. In addition, both factors showed moderate significant positive correlations with functioning.

Table 3. Correlations between the CPAQ-SV and the AAQ and the criterion variables

	Factor I: Activity engagement	Factor II: Pain willingness	General acceptance
Pain intensity	−.539**	−.379**	−.313**
Depression	−.427**	−.416**	−.060
Anxiety	−.427**	−.370**	−.098
Functioning	.521**	.376**	.371**
Functional impairment	−.405**	−.478**	−.259*

*$p < .05$.**$p < .01$.

Table 4. Structural models. Goodness-of-fit indexes

	χ^2/ df*	NNFI	CFI	RMSEA
Initial model	5.85	.27	.66	.23
Final model	1.60	.91	.94	.08

* χ^2/ df, Satorra-Bentler chi-square divided by degrees of freedom.*Note*. NNFI, non-normed fit index; CFI, comparative fit index; RMSEA, root mean-square error of approximation.

The associations between the criterion variables and the AAQ, a measure of general psychological acceptance, were also examined. General acceptance showed moderate significant negative correlations with pain intensity and functional impairment, although it correlated positively with functioning. General acceptance was not associated with anxiety and depression (Table 3).

Structural model

A path analysis via SEM was performed to examine the relative capacity of general acceptance and the components of chronic pain acceptance to influence patient adjustment. In line with previous research (e.g., see Fish *et al*., 2010), a hypothetical model was tested in which Activity Engagement, Pain Willingness, and General Acceptance completely mediated the influence of Pain Intensity on patients' adjustment. Causal paths were defined from Pain Intensity to Activity Engagement, Pain Willingness and General Acceptance, and from Activity Engagement, Pain Willingness, and General Acceptance to Anxiety, Depression, Functioning, and Functional Impairment. All residual variances were assumed to be uncorrelated.

In the initial model, Pain Intensity had a negative influence on Activity Engagement ($\gamma = -.53$), Pain Willingness ($\gamma = -.33$), and General Acceptance ($\gamma =$ - .25). Activity Engagement had a negative influence on Anxiety ($\beta = -.31$), Depression ($\beta = -.35$), and Functional Impairment ($\beta = -.26$) and a positive influence on Functioning ($\beta = .44$). Pain Willingness mainly influenced Anxiety ($\beta = -.23$), Depression ($\beta = -.20$), and Functional Impairment ($\beta = -.25$) and had no influence on Functioning ($\beta = .09$). General Acceptance had a negative influence on Depression ($\beta = -.10$), and positive influence on Functioning ($\beta = .15$), although the standardized coefficients were low; it had no influence on Anxiety ($\beta = -.03$) or Functional Impairment ($\beta = -.02$).

As shown in Table 4, the various GFIs calculated for the initial SEM indicated that the estimated model provided a poor fit to the data. In line with the recommendations

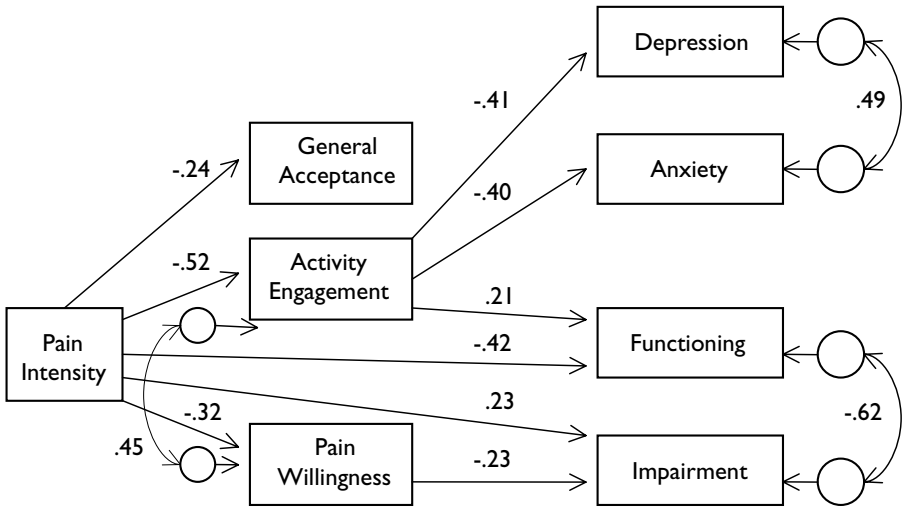

Figure 1. Final SEM model showing the mediating role of chronic pain acceptance variables between pain intensity and adjustment to chronic pain. Rectangles indicate observed (measured) variables, circles indicate standardized error variances, values above the arrows indicate standardized path coefficients, straight lines with arrows indicate causal paths, curved lines terminating in arrows indicate correlations (with the correlation value just above the line). To avoid clutter, standardized error variances and non-standardized path coefficients are omitted from this figure.

of the *Lagrange Multiplier Test* (Bentler, 2006), the following modifications were sequentially made to the initial model: (a) a path was included from Pain Intensity to each of the criteria variables, suggesting that Pain Intensity and outcomes were partially mediated by Activity Engagement, Pain Willingness, and General Acceptance; (b) all paths of the initial model that were not statistically significant were deleted; and (c) error covariances were added between Depression and Anxiety, Functioning and Functional Impairment, and Activity Engagement and Pain Willingness. The correlations between these residuals are accounted for by the fact that they are subscales of the same instrument.

Figure 1 represents the final model. As shown in Table 4, the various GFIs calculated indicated that the final model provided a good fit to the data. The influence of Pain Intensity on Anxiety and Depression was mediated by Activity Engagement. Activity Engagement also partially mediated the influence of Pain Intensity on Functioning. Activity Engagement yielded three statistically significant path coefficients. First, individuals characterized by higher levels of Activity Engagement reported lower levels of Depression and Anxiety. Activity Engagement also had statistically significant effects on Functioning because individuals with higher levels of Activity Engagement reported higher levels of Functioning. The only statistically significant path coefficient for Pain Willingness was to Functional Impairment; higher levels of Pain Willingness were associated with lower levels of Functional Impairment. Pain Intensity yielded five statistically significant path coefficients. The first was to General Acceptance, with individuals with higher levels of Pain Intensity reporting lower levels of General Acceptance. Higher levels of Pain Intensity were also associated with lower levels of Activity Engagement and Pain Willingness. Finally, in relation to outcome variables, individuals reporting higher Pain Intensity showed lower Functioning and higher Functional Impairment. On the other

hand, General Acceptance did not yield any statistically significant path coefficient to adjustment variables.

Discussion

The purpose of this study was to present new empirical evidence of the CPAQ-SV regarding its validity in a large heterogeneous sample of patients with chronic pain; more specifically: (a) to examine the internal structure of the CPAQ-SV; (b) to assess its criterion validity by examining the association of pain acceptance, as measured by the CPAQ-SV, with adjustment to chronic pain; and (c) to investigate the relative capacity of general acceptance and the components of chronic pain acceptance to influence patient adjustment.

Confirmatory factor analysis of the CPAQ-SV supported the validity of a 20-item version (McCracken *et al*., 2004) with two subscales corresponding to two independent factors: Activity Engagement and Pain Willingness. These results are consistent with previous research which also supported the validity of this two-factor structure (Fish *et al*., 2010; Nilges *et al*., 2007; Ning *et al.*, 2008; Rodero *et al*., 2010; Vowles *et al*., 2008; Wicksell *et al*., 2009). Nevertheless, findings on the independence of the two factors are diverse, since some studies (Fish *et al*., 2010; Wicksell *et al*., 2009) have proposed two related factors, whereas other studies have suggested a two-independent factors solution (González *et al*., 2010; Ning *et al*., 2008; Rodero *et al*., 2010; Vowles *et al*., 2008). As Reneman *et al*. (2010) suggested, methodological differences and heterogeneity within the samples could account for the diversity of results. It should be noted that, with the exception of three studies (Fish *et al*., 2010; Vowles *et al*., 2008; Wicksell *et al*., 2009) evidence on the factorial structure of the CPAQ comes from exploratory factor analyses. In view of the available evidence it can been firmly stated that the CPAQ and, specifically the CPAQ-SV, assess two components of pain acceptance: engaging in everyday activities in the presence of pain, and responding to pain-related experiences without attempts at control or avoidance. Both components are theoretically relevant because, as has been emphasized (McCracken *et al*., 2004), activities could be engaged in to avoid or control pain and not because the individual values them. Thus, significant discrepancies between the scores of both subscales could be of important prognostic value since high scores in Activity Engagement and low scores in Pain Willingness could be a sign of a deficient adjustment process (Vowles *et al*., 2008). In addition, this argument suggests that Activity Engagement and Pain Willingness could be better conceived as two relatively independent components of Pain Acceptance.

Correlation analyses showed that pain acceptance was significantly associated with adjustment. High levels of activity engagement and pain willingness were associated with lower levels of depression, anxiety, pain intensity, and functional impairment and with higher levels of functioning. In general, the magnitude of these associations was moderate. In particular, the magnitude of the associations between the Activity Engagement subscale and adjustment were higher than those between the Pain Willingness subscale and adjustment, except for the association with functional impairment. These results are consistent with previous research which indicates that pain acceptance is a meaningful and useful construct to understand the experience of chronic pain (Esteve *et al*., 2007; Mason *et al*., 2008; McCracken, 1998; McCracken *et al*., 1999, 2004; McCracken & Samuel, 2007; Viane *et al*., 2003, 2004; Vowles *et al*., 2007, 2008; Vowles & McCracken, 2008, 2010; Wicksell *et al*., 2009).

Similarly, SEM analyses showed that the association between pain intensity and anxiety and depression was fully mediated by Activity Engagement. In addition, Activity Engagement partially mediated the association between pain intensity and functioning. On the other hand, Pain Willingness only partially mediated the influence of pain intensity on functional impairment. In view of these results, it could be concluded that the Activity Engagement subscale is more strongly associated with outcomes than Pain Willingness. Pain Willingness significantly influenced Functional Impairment; that is, in patients with a long history of pain, the deterioration in activities associated with pain is at least as informative as the current level of functioning. Thus, in the long run, Pain Willingness may be the key to adjustment to chronic pain.

This study examined the association between general acceptance and adjustment to chronic pain. General acceptance, as assessed by the AAQ, only showed significant associations with pain intensity, functioning, and functional impairment. The magnitude of these associations was smaller than the correlations between Activity Engagement and adjustment, and similar to the associations between Pain Willingness and adjustment, except for Functional Impartment where the association was stronger. No association was found between general psychological acceptance and measures of anxiety or depression. These findings partly agree with recent studies (McCracken & Velleman, 2010; McCracken & Zhao-O'Brien, 2010). McCracken and Zhao-O'Brien (2010) found that general acceptance significantly increased the explained variance in adjustment as shown by regression analyses. However, in the present study, SEM analyses showed that general acceptance did not have a significant influence on adjustment. These discrepancies could be due to the methodology used since SEM produces more parsimonious models. As Reneman *et al*. (2010) have indicated, pain acceptance is a specific construct, whereas general acceptance is a trait-like construct, and the AAQ specifically measures the general tendency to respond to internal events with avoidance. Thus, longitudinal studies should determine whether individuals high in general acceptance would develop pain acceptance responses when faced with chronic pain. This would be a valuable finding since it could aid in the identification of patients in the first stages of chronic pain who may be experiencing poor adjustment to the situation. Pain acceptance cannot be properly understood in isolation from the other processes which compose the construct of psychological flexibility, and thus future research is needed to clarify this complex nomological network.

This study has some limitations. Despite the fact that the measures included were intended to assess patient functioning across emotional and behavioural domains, self-reporting was the only method included in the analyses. Future research should replicate this study and include different assessment methods.

In summary, this study provides evidence that the CPAQ-SV is a valid and reliable instrument for clinical practice and research which assesses two components of pain acceptance: Activity Engagement and Pain Willingness. Moreover, Activity Engagement directly influenced mood, and partially determined current functioning; meanwhile Pain Willingness partially influenced impairment in the long run. Consequently, increasing chronic pain acceptance should be one of the most relevant aims in chronic pain treatments and the CPAQ scores are useful to predict adjustment to chronic pain in the short and the long run.

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