DEVELOPMENT OF AN ACTIVITY PATTERNS SCALE (APS)

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INTRODUCTION

Six activity patterns were identified using several self-report measures in participants with chronic pain: Pain Avoidance, Activity Avoidance, Task Contingent Persistence, Excessive Persistence, Pain Contingent Persistence, and Pacing (Kindermans et al., 2011).It has been proposed that instruments assessing pacing should include items which address three specific pacing behaviours (breaking tasks into smaller pieces, taking frequent short rests, and speeding up or slowing down) each of which have a single goal (increasing activity level, conserving energy for valued activities, or reducing pain) (Nielson et al., 2013).

The aim of this study was to develop an instrument to assess the activity patterns identified by Kindermans et al. (2011) including the three items with the highest factor loading in each dimension identified by these authors. Also, following Nielson et al. (2014) three "Pacing" scales were included according to the goal of each specific behavior.

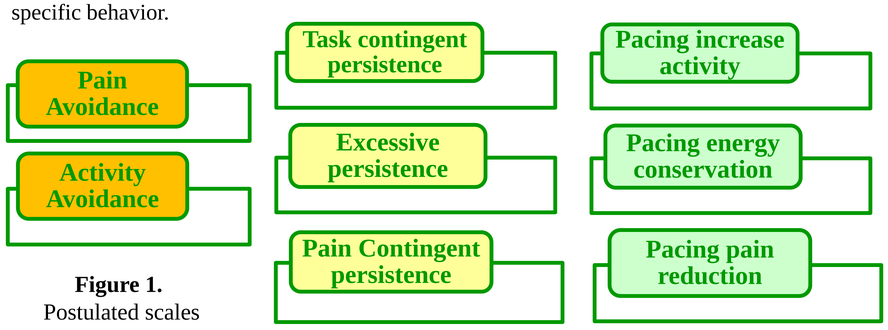

Figure 1.
Postulated scales

METHOD

Variables (N = 291)	%
Sex	
Male	9.97
Female	90.03
Marital status	
Married or cohabiting	76.60
Education	
Primary school	21.3
High school	40.50
Work Status	
Working	32.60
Unemployed	21.30
Retired	26.80
Diagnostic	
Fibromyalgia	78.69
Other rheumatic diseases	21.31
Age (years)	
Mean	52.00
S.D	9.86

Table 1. Description of the sample

The Spanish associations of patients with fibromyalgia and rheumatic diseases were contacted via e-mail and their collaboration was asked to spread an online protocol among their associates. The participants accessed the online protocol through the link which was provided by their respective associations.

INSTRUMENTS

The Patterns of Activity Measure-Pain (POAM-P, Cane, Nielson, McCarthy & Mazmanian, 2013)

Activity Patterns Scale (APS)

RESULTS

Three alternative factor structures were tested by confirmatory factor analysis performed via Structural Equation Modeling (SEM).

Alternative factor structures	χ^2/ d.f.[a]	NNFI	CFI	RMSEA
Three factors	3.85	.88	.89	.099
Six related factors	2.27	.95	.96	.066
Eight related factors	2.19	.95	.96	.064

Table 2. Confirmatory Factor Analysis of the Activity Patterns Scale (PAC). Goodness-of-fit Indexes.

APS Subscales	1	2	3	4	5	6	7	8
1. Pain Avoidance α = .56	1	.33**	-.27**	-.07	-.012	.38**	.46**	.51**
2. Activity Avoidance α = .60		1	-.23**	.08	.09	.19**	.25**	.32**
3. Task-contingent Persistence α = .81			1	.43**	.35**	-.08	-.15**	-.20**
4. Excessive Persistence α = .69				1	.39**	.10	.05	-.09
5. Pain-contingent Persistence α = .84					1	.20**	.18**	.07
6. Pacing for increasing activity level α = .69						1	.75**	.75**
7. Pacing for conserving energy for valued activities α = .76							1	.75**
8.Pacing for pain reduction α = .72								1

Table 3. Intercorrelations among the Patterns of Activity Scale subscales.

APS Subscales	POAM Avoidance	POAM Overdoing	POAM Pacing
Pain Avoidance	.71**	-.27**	.47**
Activity Avoidance	.59**	-.02	.21**
Task-contingent Persistence	-.37**	.72**	-.27**
Excessive Persistence	-.06	.67**	-.08
Pain-contingent Persistence	-.04	.57**	.05
Pacing for increasing activity level	.38**	-.03	.75**
Pacing for conserving energy for valued activities	.50**	-.12	.81**
Pacing for pain reduction	.58**	-.19**	.80**

Table 4. Correlations between the Patterns of Activity Scale (APS) subscales and the Patterns of Activity Measure-Pain (POAM-P).

CONCLUSIONS

Confirmatory factor analysis of the APS supported the validity of a 24-item version with 8 subscales corresponding to 8 related factors. The 8 factor structure was slightly superior to the 6 factor structure. These results supported that Avoidance, Persistence, and Pacing are better conceived as multidimensional and it is worth distinguishing underlying dimension in these constructs.

APS-Avoidance subscales showed moderate to high positive correlations with the APS-Pacing subscales, with the relation between the APS-Pain Avoidance and the APS-Pacing for Pain Reduction being the highest (r = .51). Also APS- Pacing for Increasing Activity Level showed the lowest correlations with both APS-Avoidance subscales. As suggested, avoidance and pacing for the purpose of reducing pain may obtain the same results and share some features while more active pacing (aimed at increasing activity level) is likely to obtain different results. Also it may be the case that patients who practice the more sedentary pacing strategies also avoid pain . The correlations between the APS-Pacing and APS-Avoidance subscales and the POAM subscales run in the same direction.

Persistence was the pattern of activity more independent from the others with the exception of the negative correlation of the APS-Task Contingent Persistence with the two APS avoidance subscales and the POAM-Avoidance. This may indicate that individuals who practice behavioral persistence for purposes of finishing tasks or activities despite pain are less prone to avoid pain and activity.

The internal consistency of the APS scales is acceptable specially taking into account the number of items, neverthelss, the reliability of the avoidance subscales could be improved.

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