

## INTRODUCTION

The **Pediatric version of the Survey of Pain Attitudes (Peds-SOPA)** has recently been developed to measure pain attitudes in youth (1). Although it has shown acceptable levels of reliability and validity, additional studies on the psychometric properties of the questionnaire are warranted. A limitation of the original Peds-SOPA is the different number of items in each scale (2), which might be responsible, at least in part, of the limited reliability of certain scales of the questionnaire.

The main **objective** of this work was to develop a revised version of the Peds-SOPA and assess its reliability, factorial structure and criteria validity.

## METHODS

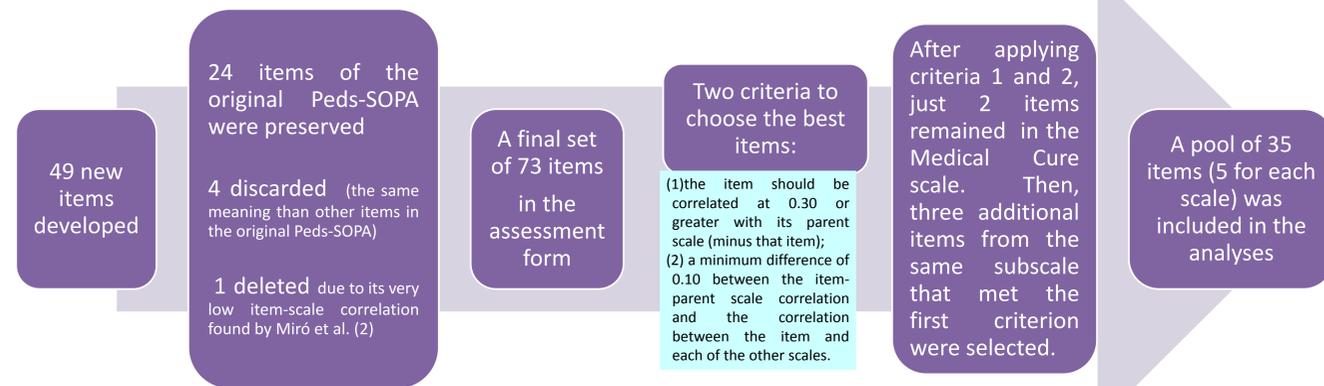
### Procedure

Eighteen secondary schools were invited to participate and 8 of them accepted. A total of 668 letters were delivered to the children and parents of those schools and 495 agreed to participate and 307 responded completely to the revised form of the Peds-SOPA (Peds-SOPA-R). Participants completed the assessment form during one hour within school time.

### Measures

Socio-demographic information	Age and sex
Pain attitudes	The revised version of the Peds-Survey of Pain Attitudes
Maximum intensity of the most frequent pain during the previous 3 months	Numerical Rating Scale (NRS-11) (3)
Disability	Functional Disability Inventory (4)
Pain coping strategies	The Pain Coping Questionnaire (5)

### Development of the revised version of Peds-SOPA



### Data analyses

- ✓ A confirmatory factor analysis (CFA) was performed to evaluate the Peds-SOPA-R **factor structure**, and the Cronbach's alpha coefficient was computed to evaluate the internal consistency of the scales. Weighted Least Square estimator using a diagonal weight matrix and with mean and variance -adjusted Chi-square- statistic (WLSMV)(6) was used as the factor extraction method since the items of the Peds-SOPA-R were considered categorical variables given that that questionnaire has just 3 possible answers.
- ✓ We evaluated the Peds-SOPA-R's **concurrent criteria validity** by computing Pearson's correlations between scores on the Peds-SOPA-R subscales scores and the validity criterion (pain intensity, disability and pain coping strategies).

## RESULTS

Table 1. Sample characteristics

Sex (N, %)	
Boys	125 (40%)
Girls	182 (59%)
Age (Mean, SD)	14.35 (1.62)
Pain experiences in the last 3 months (N, %)	
Yes	286 (93%)
No	21 (7%)
286 that experienced pain in the last 3 months	
Chronic pain* (N, %)	
Yes	74 (26%)
No	158 (55%)
Maximum intensity of the most frequent pain <sup>b</sup> (Mean, SD)	7.87 (1.75)

\*Information missing in 54 cases of 286 that experienced pain in the last 3 months (there were 54 cases because this question was introduced a posteriori, so 50 of 286 cases were not asked about that question, the other 4 cases did not answer to that question).  
<sup>b</sup>Information missing in 5 cases of 286 that experienced pain in the last 3 months.

- **Criteria validity** was supported by significant correlations between pain attitudes and certain variables (see table 2).

Table 2. Pearson's correlations between Peds-SOPA-R and criteria variables

	Control	Medical Cure	Solicitude	Medication	Emotion	Exercise	Disability
Pain Intensity	-0.13*					-0.12*	0.23**
Disability	-0.23**		0.13*			-0.23**	0.31**
Information Seeking- /Problem Solving		0.14*	0.14*	0.13*	0.12*		0.13*
Seeking Social Support		0.12*	0.24**	0.26**	0.16**		
Positive Self Statements		0.29**			0.16**	0.13*	
Behavioral Distraction		0.16**				0.14*	-0.30**
Cognitive Distraction		0.31**	-0.22**	-0.14*	-0.15*	0.21**	-0.38**
Externalizing/ Internalizing/ Catastrophizing		-0.14*		-0.12*	0.12*		
		-0.27**	0.30**		0.17**	-0.14*	0.37**

\*\*p<0.01, \*p<0.05

- Factor analyses confirmed the **seven factor-solution** described in the original Peds-SOPA with an excellent goodness of fit ( $\chi^2(126)=225.71$ ,  $p<0.001$ ;  $CFI=0.96$ ;  $TLI=0.97$ ;  $RMSEA=0.05$ ). See factor loadings on Figure 1.
- Reliability: **Cronbach's Alfa** of the Peds-SOPA-R scales ranged from **0.65 to 0.87**.

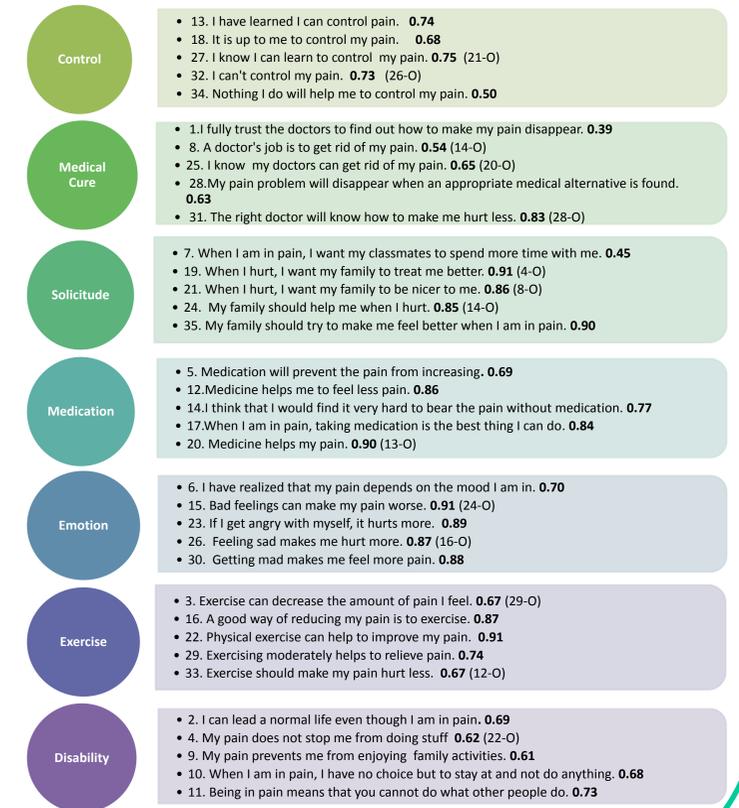


Figure 1. Factor loadings of the seven-factor structure of the Peds-SOPA-R  
Note: A number followed by -O means that this item is an item of the Peds-SOPA original version.

## CONCLUSIONS

- The Peds-SOPA-R has a **good level of validity and reliability** and the 7-factor solution suggested in previous studies with young people has been confirmed in our sample of schoolchildren.
- The changes in the content of the scales, resulted in an increase of the **internal consistency properties** for all the scales but for Medical Cure that slightly diminished, and, as well, an improvement of the **factor fit** and the **factorial loadings**.
- Further research is needed to study Peds-SOPA-R psychometric properties in children and adolescents with chronic pain.

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