

# The Cognitive Fusion Questionnaire: a study with a sample of adolescents

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## INTRODUCTION

**Acceptance and Commitment Therapy (ACT)** has shown some success in improving the quality of life of adolescents with chronic pain (1). ACT aims to promote psychological flexibility and encourages a focus on the client's most valued life goals (2). A central element in psychological flexibility is **cognitive defusion** – and it is taught to counteract the cognitive fusion process. Cognitive fusion has been defined as “...the tendency of human beings to be caught up in the content of what they are thinking so that it dominates over other useful

sources of behavioral regulation” (3). The Cognitive Fusion Questionnaire has emerged as one of the most promising measures of this core construct (CFQ). However, up to this date, information on the CFQ is only available for adults. The main **objectives** of this work were to assess the psychometric properties of a translated version of the Cognitive Fusion Questionnaire for use by Catalan-speaking adolescents, specifically, to examine its factorial structure, reliability, and validity.

## METHODS

### Procedure

456 letters were delivered to the children and parents of the participating schools. 344 adolescents whose parents agreed to participate or who consented by themselves to participate (older than 17 years old) completed the assessment form within school time.

<b>Socio-demographic information</b>	Age and sex
<b>Cognitive Fusion</b>	The Cognitive Fusion Questionnaire (4)
<b>Maximum intensity of the most frequent pain</b>	Numerical Rating Scale (NRS-11)
<b>Anxiety sensitivity</b>	Childhood Anxiety Sensitivity Index.
<b>Mindfulness</b>	The Philadelphia Mindfulness Scale (5)
<b>Disability related to the impact of illness on everyday functioning</b>	The Functional Disability Inventory
<b>Pain coping strategies</b>	The Pain Coping Questionnaire

CFQ is a 7-item measure with a 1-7 Likert scale. (A higher score indicates higher levels of cognitive fusion; the score range is 7 to 49).

Linguistic translation of the CFQ into Catalan was performed using a back-translation procedure. The scale developer indicated that the back-translated version was faithful to the original. No developmental adjustment to the wording was deemed.

### Data analyses

- A confirmatory factor analysis (CFA) was performed to evaluate the CFQ factor structure, and then computed the Cronbach's alpha coefficient to evaluate the internal consistency of the measure.
- Before performing the CFA, we examined the Skewness and Kurtosis of each item's distribution, and tested whether the data were suitable to factorize using Kaiser-Meyer-Olkin test (KMO) and Bartlett's statistic. Maximum likelihood (ML) was used as the factor extraction method and we computed Chi-square ( $\chi^2$ ), Comparative Fit Index (CFI), Root-Mean-Square Error of Approximation (RMSEA), and Standardized Root Mean Residual (SRMR) to help evaluate the goodness of fit of the solution.
- We evaluated the CFQ's concurrent criteria validity by computing Pearson's correlations between scores on the CFQ scale score and the validity criterion assessing anxiety sensitivity, mindfulness, pain intensity, disability and pain catastrophizing.

## RESULTS

Table 1. Sample characteristics

	N	%	Mean	SD
<b>Sex</b>				
Boys	141	41		
Girls	203	59		
<b>Age</b>			14.36	1.66
<b>Pain experiences in the last 3 months</b>				
Yes	314	91		
No	30	9		
<b>314 that experienced pain in the last 3 months</b>				
<b>More than 3 months with pain<sup>a</sup></b>				
Yes	69	29		
No	167	71		
<b>Maximum intensity of the most frequent pain<sup>b</sup></b>	311		7.91	1.66

<sup>a</sup>Information missing in 78 cases of 314 that experienced pain in the last 3 months.

<sup>b</sup>Information missing in 3 cases of 314 that experienced pain in the last 3 months.

Table 2. Factor loadings resulting from CFA

Items	Fusion factor factor loadings
1. My thoughts cause me distress or emotional pain	0.69
2. I get so caught up in my thoughts that I am unable to do the things that I most want to do	0.71
3. I over-analyse situations to the point where it's unhelpful to me	0.59
4. I struggle with my thoughts	0.45
5. I get upset with myself for having certain thoughts	0.50
6. I tend to get very entangled in my thoughts	0.57
7. It's such a struggle to let go of upsetting thoughts even when I know that letting go would be helpful	0.56

- Cronbach's Alfa was 0.78.

- Histograms and measures of **Skewness and Kurtosis** indicated that the distributions of the 7 CFQ items were normal. **KMO (0.84)** and **Bartlett's statistic ( $\chi^2 = 516.0$ ,  $df=21$ ,  $p<.0001$ )** showed that data was suitable to factorize.

- Factorial analyses revealed a **one-factor solution ( $\chi^2 (14)=29.63$ ,  $p<0.01$ ; CFI=0.97; RMSEA=0.06; SRMR=0.03)**. See factor loadings on Table 2.

Table 3. Pearson's correlations between CFQ and criteria variables

	CFQ Total Scale	
<b>Catastrophizing</b>		
- Total scale	0.45**	
- Helplessness	0.39**	
- Magnification	0.39**	
- Rumination	0.36**	
<b>Anxiety sensitivity</b>	0.45**	
<b>Mindfulness</b>		
- PHLMS_Acceptance	-0.42**	
- PHLMS_Awareness	0.14 <sup>^</sup>	
<b>Pain Coping Strategies</b>		
- Externalizing	0.37**	
- Internalizing/Catastrophizing	0.51**	
- Information Seeking /Problem Solving	0.27**	** p<0.001
- Seeking of Social Support	0.11	* p<0.01
- Positive Self-Statements	0.06	<sup>^</sup> p<0.05
- Behavioral Distraction	-0.17*	
- Cognitive Distraction	-0.32**	
<b>Maximum intensity of the most frequent pain (NRS-11)</b>	0.26**	
<b>Disability</b>	0.29**	

## CONCLUSIONS

- Reports provided with the CFQ show **an acceptable level of validity and reliability**, and the one-factor solution suggested for adults has been confirmed in our sample of schoolchildren.
- **Advantages of CFQ** are: its brevity and simplicity, it assesses cognitive fusion in general, rather cognitive fusion associated with a specific health condition, it measures cognitive fusion only and its factorial structure has been confirmed in 7 different samples.
- **Further research** should look at additional psychometric properties of the CFQ that have been studied in adult samples, but not yet in adolescents (e.g., sensitivity to treatment or test-retest reliability).

## REFERENCES

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