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Psychometric properties and dimensional structure of the Spanish version of the Coping Responses Inventory - Adult Form

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One of the goals of psychological assessment focuses on the adaptation of its instruments to different populations. The objective of this study is to establish the psychometric properties and dimensional structure of the Spanish version of the Coping Responses Inventory- Adult Form (CRI-Adult, Moos, 1993). The following criteria were analyzed: a) descriptive statistics; b) internal consistency reliability (Cronbach's alpha, and intercorrelations between scales); c) test-retest reliability (4-week interval); d) dimensionality of CRI-Adult (exploratory factor analysis); e) construct validity (confirmatory factor analysis); f) convergent criterion validity (correlations between CRI-Adult and Coping Strategies Indicator, CSI, Amirkhan, 1990), and g) predictive criterion validity (correlations between CRI-Adult, and SCL-90-R, Derogatis, 1983). The results, obtained with 800 adults from Barcelona and surrounding area (334 men and 466 women, aged between 18 to 76 years) indicate that the Spanish version of CRI-Adult has satisfactory psychometric properties that allow using this test with guarantee.

Propiedades psicométricas y estructura dimensional de la versión española del Inventario de Respuestas de Afrontamiento - Versión Adultos. Uno de los campos de aplicación de la evaluación psicológica se concreta en la adaptación de sus instrumentos de medida a diversas poblaciones. El objetivo de este estudio se centra en establecer las propiedades psicométricas y la dimensionalidad de la versión española del Coping Responses Inventory - Adult Form (CRI-Adult, Moos, 1993). Se han analizado los siguientes criterios: a) estadísticos descriptivos; b) consistencia interna (alfa de Cronbach y correlaciones entre escalas); c) fiabilidad test-retest (intervalo de 4 semanas); d) dimensionalidad del CRI-Adult (análisis factorial exploratorio); e) validez de constructo (análisis factorial confirmatorio); f) validez convergente (correlaciones entre CRI-Adult y Coping Strategies Indicator, CSI, Amirkhan, 1990); y g) validez predictiva (correlaciones entre CRI-A y SCL-90-R, Derogatis, 1983). Los resultados, obtenidos con una población de 800 sujetos adultos de Barcelona y área metropolitana (334 hombres y 466 mujeres de edades entre 18 y 76), indican que la versión española del CRI-Adult denota unas adecuadas propiedades psicométricas que permiten utilizar este test con garantías de bondad.

There are varies conceptual perspectives regarding coping. Moos (1993, 1995) has suggested a transactional model where coping strategies act as mediating variables between acute life crisis and the outcome on health and well-being. This model is bidirectional and admits a reciprocal feedback from the variables involved. Moos made an effort to integrate the different perspectives on the dimensionality of coping. He presented a multidimensional model emphasizing the focus and method of coping (Cronkite & Moos, 1995). The focus of coping refers to the individual's orientation towards the problem (approach versus avoidance) and method refers to cognitive and behavioral efforts that subjects make in order to master or resolve stressors. Under the focus perspective people can make active efforts to resolve the problems and adapt themselves to stressors (approach coping) or, on the contrary, try to avoid the problem and concentrate efforts on managing the emotion generated by the conflict (avoidance coping). Under the method perspective, people can employ cognitive or behavioral efforts to approach or avoid the stressor.

The combination of these two dimensions (focus and method) forms four response categories. Each one of these four categories includes two different specific strategies: Cognitive Approach coping (Logical Analysis and Positive Reappraisal), Behavioral Approach coping (Seeking Guidance and Problem Solving), Cognitive Avoidance coping (Cognitive Avoidance and Acceptation/resignation) and Behavioral Avoidance coping (Seeking alternative Rewards and Emotional Discharge). Thus, the model includes all 8 specific strategies scales.

In order to assess coping responses Moos developed two questionnaires in 1993, one for adults: Coping Responses Inventory Adult Form (CRI-Adult) and the other for adolescents: Coping Responses Inventory Youth Form- (CRI-Youth). The development of these tests was more theoretical than empirical. This study examined the psychometric properties of the adult version of the questionnaire.

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There are very few studies that analyze the psychometric properties of the CRI-Adult in community adult samples. Most of the studies included brief descriptions of certain psychometric characteristics (normally, internal consistency) in specific populations as psychopathological and psychiatric groups, medical patients, inmates, and so on. Blalock and Joiner (2000) carried out a study with a sample of 179 students of Introductory Psychology (72 males and 107 females). They administered Cognitive Avoidance Coping scales and Behavioral Avoidance Coping scales of the CRI (Moos, 1988) twice, with a 3- week interval between them. Coefficient alphas were .78 and .81 respectively. The correlation between Time 1 and Time 2 scores was .52, which indicates moderate test-retest reliability. A Confirmatory Factor Analysis of CRI Avoidant Coping subscales was conducted by the authors. The results supported the assumption that both Cognitive Avoidance and Acceptance or Resignation were cognitive avoidance strategies, and Seeking Alternative Rewards and Emotional Discharge were behavioral avoidance strategies.

Walsh and McGrath (2000) administered a short version of the CRI (Moos 1990) to 112 first-generation Irish people living in England (46 male and 66 female) with a mean age of 45.2 years (range 20-80). Reliabilities for behavioral approach and cognitive approach were α= .60 and α= .63, respectively. Reliabilities for behavioral avoidance and cognitive avoidance were α= - .06 and α= .33, respectively. Approach scales were reasonably reliable whilst avoidance scales were unreliable. Cognitive and behavioral approach coping correlated positively *(r*= .25, *p*<.05).

Mohíno, Kirchner and Forns (2004) analyzed some psychometric characteristics of CRI-Adult in a sample of 107 young inmates (mean age= 19.89, *SD*= 1.46 range= 18-25). An exploratory factor analysis with principal components method and Varimax rotation revealed three factors. Seeking Alternative Rewards, Problem Solving and Positive Reappraisal loaded in Factor I. Acceptance-Resignation and Cognitive Avoidance loaded in Factor II and Emotional Discharge loaded in Factor III. Logical Analysis and Seeking Guidance shared their weight among these three factors, suggesting that they are polyvalent strategies. The average intercorrelations between scales was low (*r*= .20), fluctuating between .48 (Cognitive Avoidance with Acceptance-Resignation) and -.02 (Problem Solving with Cognitive Avoidance).

Aguilar-Vafaie and Abiari (2007) applied a modified version of CRI-Adult to 365 Iranian undergraduate students aged between 18 and 40. They obtained alpha coefficients ranging from .48 to .93, and significant correlations among scales. Principal component factor analysis, with Oblimin and Varimax rotations, with the original CRI items plus specific Iranian items yielded seven factors. The authors established the validity of the approach versus avoidance dichotomy proposed by Moos (1993).

The study carried out by Moos in 1993 on the psychometric characteristics of the original version of the CRI-Adult offers the following information. From descriptive statistics the author concluded that compared with men, women report more answers of coping in all eight strategies, especially in Seeking Guidance and Support, Seeking Alternative Rewards, and Emotional Discharge. The internal consistence was moderate. The author reported Cronbach's alpha coefficients fluctuating between .74 and .61 for men (average alpha= .67) and between .71 and .58 for women (average alpha .64). The association among the eight scales was in general positive and moderate (average *rs* for men= .29 and for women *rs*= .25). The correlation coefficients fluctuated between .57 (Logical Analysis with Problem Solving) and -.09 (Problem Solving with Acceptation-Resignation) among men and between .49 (Logical Analysis with Problem Solving) and -.11 (Problem Solving with Acceptation-Resignation) for women. The correlations between the four approach strategies (average *r*= .47 for men and average *r*= .42 for women) are higher than those between the four avoidance strategies (average *r*= .29 for men and average *r*= .24 for women).

The average stability of coping scales after 12 months was *rs*= .49 for men and *rs*= .47 for women. Positive Reappraisal, Seeking Guidance and Support, Cognitive Avoidance, and Emotional Discharge were the most stable scales (average *rs*= .49 for men and *rs*= .47 for women). Finally, Moos (1993) analyzed the convergent validity of the CRI-Adult by means of its correlation with previous versions of the test. The correlation coefficients between the scales that were conceptually comparable fluctuated between *r*= .95 (Seeking Guidance and Support) and *r*= .56 (Emotional Discharge).

The main objective of the present study was to analyze the psychometric properties of the Spanish version of the Coping Responses Inventory- Adult Form (CRI-Adult, Moos, 1993) using the following criteria: a) Descriptive statistics; b) internal consistency reliability (Cronbach's alpha, and intercorrelations between scales); c) test-retest reliability (4-week interval); d) dimensionality of coping (exploratory factor analysis); e) construct validity (confirmatory factor analysis); f) convergent criterion validity; and g) predictive criterion validity. Classical studies on coping have pointed out the significant differences found in the facing of problems by males and females (Billing & Moos, 1981; Folkman & Lazarus, 1980; Stone & Neale, 1984). Given that these differences between genders are still relevant, as can be seen in the recent meta-analysis of Tamres, Janicki and Helgeson (2002), we examined gender differences in all the analyses.

Method

Participants

Participants were 800 community adult subjects (334 men and 466 women). The average age of the total population was 34.73 years (*SD*= 11.90; range 18-76; 42% between 18-30; 40% between 30-50; 18% between 51-76). The average age for men was 37.68 (*SD*= 12.44, range = 18-74) and for women it was 32.64 (*SD*= 11.99, range 18-76). The educational level of the total population amounts to the completion of 11.33 years of study (*SD*= 4.17, range 6-20), which corresponds to level 5 on the Educational Scale of Hollingshead (1975). At the time of the evaluation 96% of the men and the 97% of the women were of Spanish nationality and living in Barcelona. The test-retest reliability and convergent validity were analyzed in a group of 100 students of the Faculty of Psychology at the University of Barcelona.

Instruments

The CRI-Adult (Moos, 1993) is a 48-item self-reporting scale which assesses coping responses to stressful life experiences in adults aged 18 and over. These responses are measured by eight 6-

item scales using a four point Likert scale (from «not at all» to «fairly often»). The scales Logical Analysis, Positive Reappraisal, Seeking Guidance and Support, and Problem Solving measure approach coping. The scales Cognitive Avoidance, Acceptance or Resignation, Seeking Alternative Rewards, and Emotional Discharge measure avoidance coping. Cognitive method is assessed by the first two scales in each set and behavioral method by the last two.

To analyze convergent validity, the Spanish version (Soriano & Zorroza, 1999) of Coping Strategy Indicator (CSI; Amirkhan, 1990) was used. The CSI assesses three coping dimensions: Problem Solving, Seeking social support and Avoidance, by means of 33- items with three alternative answers («a lot», «a little», «not at all»). The Spanish adaptation shows a good reliability (alpha coefficients= .89, .92, and .83 respectively for each one of the three dimensions).

To establish predictive criterion validity, the Spanish adaptation (González de Rivera, De las Cuevas, Rodríguez Abuín, & Rodríguez Pulido, 2002) of Symptom Checklist-90-R (SCL-90-R, Derogatis, 1983) was employed. The SCL-90-R is a 90-item self-report inventory that assesses nine symptoms of psychopathology and 3 global indices: Global Severity Index (GSI), measuring overall psychological distress, Positive Symptom Distress Index (PSDI), measuring the intensity of symptoms, and Positive Symptom Total (PST), measuring the number of self-reported symptoms. The Spanish adaptation of SCL-90-R denotes high reliability with Cronbach's alpha coefficients fluctuating between .81 and .90.

Procedure

The adaptation of the CRI-Adult began with the translation of the English original into Spanish and with a back translation, which was approved by Dr. Moos and by Psychological Assessment Resources. Tests were administered to a community adult population by suitably trained students of Psychological Assessment. Non-probability sampling method with criterion of availability or convenience was used to recruit participants. Confidentiality of the data collected was guaranteed through the anonymity of respondents and the option of not describing the problem or describing it briefly was offered. In order to obtain the convergent validity, both the CRI-Adult and the CSI were administered at the same time to a sample of 100 students of the Faculty of Psychology. To analyze test-retest reliability, after a 4-week interval the CRI-Adult was administered again and the participants were instructed to answer items on the problem that they had explained in the first administration of the test. Finally, at this second session the SCL-90-R was administered to obtain predictive validity.

Results

Descriptive statistic

Tables 1 and 2 show the descriptive statistics for men and for women. The results of the ANOVA indicated differences between genders in their use of coping. In general, the women obtained greater scores than the men. Bonferroni's correction was used to adjust the alpha level in order to examine the dependent variables at univariate level. Compared with the men the women used more Seeking Guidance (F [1, 715]= 20.90, p<.001), Cognitive Avoidance (F [1, 715]= 14.44, p<.001), Emotional Discharge (F [1, 715]= 78.91, p<.001), Approach coping (F [1, 715]= 9.07, p<.03) and Avoidance coping (F [1, 715]= 38.10, p<.001).

Internal consistency reliability

The internal consistency was analyzed by means of two methods, Cronbach's alpha and intercorrelations between scales. Cronbach's alpha coefficients fluctuated between .70 (Problem Solving) to .52 (Seeking Guidance) for men, and between .66 (Positive Reappraisal) to .50 (Acceptation-Resignation) for women. Alpha coefficients increased on the global scales especially on that of Approach (see tables 1 and 2). These coefficients were slightly lower than those found by Moos (1993), but agreed with existing literature. In addition, the changes in alpha value when particular items were deleted suggested that the items were functioning correctly.

Table 1
Means, standard deviations, Cronbach's Alpha and Pearson intercorrelations among scales for men

	Descriptive statistics		α	r_{it}	α if item deleted	Pearsons' correlations								
	M	*SD*				1	2	3	4	5	6	7	8	9
1. Logical analysis	10.36	3.49	.55	.17 to .38	.48 to .56									
2. Positive reappraisal	9.83	3.86	.64	.34 to 44	.58 to .62	.27**								
3. Seeking guidance	7.60	3.52	.52	.04 to .33	.50 to .58	.18*	.15*							
4. Problem solving	11.25	3.89	.70	.33 to .61	.61 to .70	.41**	.26**	.25**						
5. Cognitive avoidance	7.10	3.56	.58	.27 to .41	.49 to .55	.17*	.30**	.05 ns	-.09 ns					
6. Acceptance or resignation	6.56	3.74	.61	.24 to .44	.51 to .59	.02 ns	.02 ns	.11 ns	-.24**	.39**				
7. Seeking alternative rewards	6.37	3.71	.59	.25 to .40	.51 to .56	.23**	.42**	.22**	.31**	.17*	.04 ns			
8. Emotional discharge	4.58	3.39	.60	.22 to .50	.49 to .60	.25**	.13 ns	.07 ns	.04 ns	.41**	.27**	.31**		
9. Approach coping	39.15	9.83	.78	.07 to .49	.76 to .79	.69**	.61**	.62**	.75**	.14*	-.06 ns	.42**	.14*	
10. Avoidance coping	24.98	9.64	.72	.09 to .47	.70 to .73	.20**	.31**	.17**	-.02 ns	.71**	.66**	.57**	.73**	.24**

* p<.05; ** p<.001

Tables 1 and 2 show the correlations between the eight scales of the CRI-Adult. Correlation coefficients for men fluctuated between *r*= .41 (Logical Analysis with Problem Solving) to *r*= .01 (Logical Analysis with Acceptance- Resignation). The highest negative coefficient was *r*= -.24 (Problem Solving with Acceptance-Resignation). For women the coefficients fluctuated between *r*= .42 (Logical Analysis with Problem Solving) to *r*= .06 (Problem Solving with Emotional Discharge). The highest negative coefficient was *r*= -.23 (Problem Solving with Acceptance- Resignation). Average correlation for men was *r*= .21 and for women *r*= .20.

Test-retest reliability (4-week interval)

Test-retest reliability was analyzed by means of Intraclass correlations (IC) and repeated measures test. Table 3 shows the intraclass correlation coefficients (ICCs) for men and for women. The ICCs were high on nearly all the scales and on some of them very high (Guilford, 1956). In general, men obtained ICCs somewhat higher than women. According to *z* test effect size correlations for independent groups, there were significant differences between gender on Positive Reappraisal, Cognitive Avoidance, and Approach coping.

The repeated measures tests indicated that there were no significant differences between Time 1 and Time 2 scores of the CRI-Adult scales (all *p*>.20). When gender was introduced as a between-subject factor, no interaction effect appeared.

Dimensionality of CRI-Adult

Two principal component exploratory factor analyses with Oblimin rotation were conducted separately for men and for women. Although the criterion of adjustment KMO was low in both cases, that of sphericity of Bartllett allowed application of the factor analysis (KMO men= .663; Bartlett: χ^2= 314.80, *df= 28, p*<.001; KMO women= 660; Bartlett: χ^2= 604.8, *df= 28, p*<.001). Two factors emerged with eigenvalues greater than 1.00. These two factors closely resemble Approach and Avoidance dichotomy proposed by Moos (1993), even though the Approach factor includes Seeking Alternative Rewards, an Avoidant strategy. Factor analyses for men and for women maintained very similar structures (see table 4).

Construct validity

A Confirmatory factor analysis (CFA) was conducted (Amos 6.0) to determine whether the structure of the Spanish version of CRI-Adult fits with the theoretical model of coping proposed by Moos (1993). Seven models were tested. Model 1 tested the goodness of fit of the 6 items included in each of the 8 strategies of CRI-Adult. Model 2 tested the fit of the 4 strategies that composed Approach coping. Model 3 proved the fit of the 4 strategies that composed Avoidance coping. Model 4 proved the fit

Table 2
Means, standard deviations, Cronbach's Alpha and Pearson intercorrelations among scales for women

	Descriptive statistics		α	r_{it}	α if item deleted	Pearsons' correlations								
	M	*SD*				1	2	3	4	5	6	7	8	9
1. Logical analysis	10.81	3.36	.60	.16 to .43	.53 to .63									
2. Positive reappraisal	10.12	3.79	.66	.35 to .48	.59 to .64	.40**								
3. Seeking guidance	8.68	3.61	.58	.22 to .35	.49 to .53	.31*	.27**							
4. Problem solving	11.32	3.76	.63	.20 to .54	.52 to .64	.42**	.41**	.34**						
5. Cognitive avoidance	8.01	3.51	.60	.15 to .46	.43 to .61	.14**	.08 ns	-.07 ns	-.07 ns					
6. Acceptance or resignation	7.15	3.43	.50	.19 to .31	.43 to .49	-.08 ns	-.12*	.06 ns	-.24**	.42**				
7. Seeking alternative rewards	6.93	3.49	.52	.14 to .45	.39 to .53	.26**	.25**	.14**	.28**	.15**	.07			
8. Emotional discharge	6.80	3.30	.51	.14 to .35	.41 to .53	.22**	-.06	.20**	.04	.31**	.26**	.22**		
9. Approach coping	40.90	10.44	.81	.17 to .47	.80 to .81	.73**	.73**	.66**	.76**	.03 ns	-.13**	.33**	.14**	
10. Avoidance coping	29.19	8.87	.68	.08 to .39	.66 to .69	.96**	.07 ns	.13**	.06 ns	.72**	.66**	.56**	.66**	.13**

* *p*<.05; ** *p*<.001

Table 3
Intraclass correlation coefficients (one-way random) between the CRI-Adult scales in Time 1 and Time 2. Z test for correlation effect size

CRI- A Scales	ICC Time 1 and Time 2			Z test effect size	
	Total (N= 100)	Men (n= 22)	Women (n= 78)	between men and women	
Logical analysis	.58**	.75**	.53**	1.46	*p*= .06
Positive reappraisal	.74**	.87**	.71**	1.70	***p*= .04**
Seeking guidance	.82**	.85**	.81**	0.49	*p*= .31
Problem solving	.72**	.79**	.69**	0.85	*p*= .19
Cognitive avoidance	.71**	.88**	.65**	2.29	***p*= .01**
Acceptation-Resignation	.81**	.78**	.81**	0.31	*p*= .38
Seeking rewards	.70**	.74**	.68**	0.46	*p*= .32
Emotional discharge	.74**	.80**	.63**	1.36	*p*= .09
ICC average eight scales	.73**	.81**	.69**	1.06	*p*= .14
Approach coping	.80**	.91**	.77**	1.93	***p*= .03**
Avoidance coping	.78**	.84**	.72**	1.19	*p* = .17

ICCs= Intraclass correlation coefficients
** *p*<.001

of the 12 items pertaining to Cognitive Approach coping. Model 5 assessed the adjustment of the 12 items of Behavioral Approach coping. Model 6 tested the adjustment of the 12 items pertaining to Cognitive Avoidance coping. Model 7 assessed the adjustment of the 12 items of Behavioral Avoidance coping. Each one of these 7 models was tested separately for men and for women, adjusting the size of the sample according Hoelter's critical N criterion to avoid Type II error (see table 5).

Model 1: Most scales of the CRI-Adult obtained good fit indices, except Positive Reappraisal and Problem Solving for men, and Seeking Guidance and Cognitive Avoidance for women. Model 2: The four scales that composed Approach coping obtained good fit indices for both men and women. Model 3: The four Avoidance coping scales only obtained good fit indices for women. Models 4 and 5: The items on Cognitive Approach and those of Behavioral Approach coping showed poor goodness-of-fit for both men and women. Model 6: The items of Cognitive Avoidance coping only showed good fit for men. Model 7: The items of Behavioral Avoidance coping denoted a good fit for men. For women some indices showed god fit but others did not. All these data indicated that, although the Spanish version of the test denotes an adequate goodness-of-fit, some scales could be improved (see table 5).

Table 4
Factor loadings principal components factor analysis with Oblimin rotation

	Men		Women	
CRI-Adult Scales	**Factor I**	**Factor II**	**Factor I**	**Factor II**
Logical analysis	**.68**	.12	**.76**	.14
Positive reappraisal	**.65**	.23	**.69**	-.06
Seeking guidance and support	**.47**	.07	**.60**	.08
Problem solving	**.72**	-.33	**.76**	-.16
Cognitive avoidance	.24	**.79**	.05	**.76**
Acceptance-Resignation	-.07	**.76**	-.17	**.75**
Seeking alternative rewards	**.68**	.24	**.52**	.34
Emotional discharge	.37	**.66**	.23	**.66**
% Explained variance for each factor	29.94	20.85	29.46	21.66
Internal consistency for each factor	.74	.67	.76	.61

In order to improve the goodness-of-fit of the four scales with poor adjustment analyzed in model 1, alternative models were tested by removing from each scale the item with lower correlation coefficients with the remaining items. The results were as follows. In men, Positive Reappraisal fitted somewhat better if item 10 was removed: (χ^2= 10.73, *df*= 5, *p*=.06; PCMIN= .06; CMIN/DF= 2.15; CFI= .89; RMSEA= .08 (.00- .14). Problem Solving obtained very good indices if item 36 was removed (χ^2= 3.04, *df*= 5, *p*= .69; PCMIN= .69; CMIN/DF= .61; CFI= 1.00; RMSEA= .00 (.00- .08). Among women, Cognitive avoidance obtained high goodness-of-fit if item 13 was removed (χ^2= 6.01, *df*= 5, *p*= .31; PCMIN= .31; CMIN/DF= 1.20; CFI= .97, RMSEA= .03 (lower .00-higher .11). Seeking Guidance fitted well if item 3 was removed (χ^2= 2.79, *df*= 5, *p*= .73; PCMIN= .73; CMIN/DF= 1.56; CFI= 1.00; RMSEA= .00 (.00- .07).

Convergent criterion validity

Convergent criterion validity was analyzed by means of correlations between CRI-Adult and CSI scales (see table 6).

Table 5
Confirmatory factor analysis of CRI-Adult. Model fit summary indexes

CRI-Adult Scales	**χ^2**		**P CMIN**		**CMIN/DF**		**CFI**		**RMSEA (90% c.i.)**	
Model 1	**Men**	**Women**	**Men**	**Women**	**Men**	**Women**	**Men**	**Women**	**Men**	**Women**
Logical analysis	15.16, *fd* = 9, *p* = .09	13.20, *fd* = 9, *p* = .16	.09	.16	1.09	1.46	.98	.92	.02 (.00-.08)	.07 (.02-.12)
Positive reappraisal	18.06, *fd* = 9, *p* = .03	4.16, *fd* = 9, *p* = .90	.03	.90	2.01	0.46	.86	1.00	.10 (.03-.17)	.00 (.00-.05)
Seeking guidance	16.54, *fd* = 9, *p* = .06	20.49, *fd* = 9, *p* = .02	.06	.02	1.84	2.28	.83	.76	.09 (.00-.16)	.11 (.05-.18)
Problem solving	18.10, *fd* = 9, *p* = .03	11.03, *fd* = 9, *p* = .27	.03	.27	2.01	1.23	.92	.95	.10 (.03-.17)	.05 (.00-.13)
Cognitive avoidance	12.28, *fd* = 9, *p* = .20	23.95, *fd* = 9, *p* = .00	.20	.00	1.36	2.66	.92	.85	.04 (.00-.06)	.10 (.06-.15)
Acceptation-Resignation	12.06, *fd* = 9, *p* = .21	13.82, *fd* = 9, *p* = .13	.21	.13	1.34	1.54	.94	.76	.06 (.00-.14)	.07 (.00-.15)
Seeking rewards	13.70, *fd* = 9, *p* = .13	12.93, *fd*= 9, *p* = .09	.13	.17	1.52	1.44	.87	.92	.07 (.00-.15)	.07 (.00-.14)
Emotional discharge	5.64, *fd* = 9, *p* = .78	10.22, *fd* = 9, *p* = .33	.78	.33	.627	1.14	1.00	.96	.00 (.00-.08)	.04 (.00-.12)
Model 2										
Approach coping	.908, *fd* = 2, *p* = .64	.610, *fd* = 2, *p* = .74	.64	.74	.454	.305	1.00	1.00	.00 (.00-.11)	.00 (.00-.09)
Model 3										
Avoidance coping	14.82, *fd* = 2, *p* = .001	2.68, *fd* = 2, *p* = .26	.01	.26	7.41	1.34	.84	.98	.18 (.10-.27)	.04 (.00-.15)
Models 4 and 5										
Cognitive approach	95.64, *fd* = 54, *p* = .00	127.84, *fd* = 54, *p* = .00	.00	.00	1.77	2.37	.54	.74	.09 (.08-.11)	.08 (.06-.10)
Behavioral approach	104.54, *fd* = 54, *p* = .00	118.77, *fd* = 54, *p* = .00	.00	.00	1.94	2.20	.77	.74	.08 (-06-.10)	.08 (.06-.09)
Models 6 and 7										
Cognitive avoidance	63,26, *fd* = 54, *p* = .182	153.02, *fd* = 54, *p* = .000	.18	.00	1.17	2.84	.93	.60	.04 (.00-.06)	.09 (.08-.011)
Behavioral avoidance	65.86, *fd* = 54, *p* = .129	88.85, *fd* = 54, *p* = .002	.13	.02	1.22	1.65	.74	.63	.07 (.05-.09)	.08 (.06-.08)

Problem Solving scale of the CSI correlated with both, Problem Solving strategy and with global Approach scale of CRI-Adult, as well as with Logical Analysis. The Seeking Social Support scale of CSI correlated with Seeking Support strategy of CRI-Adult. Finally, the Avoidance scale of CSI correlated with Avoidance global scale of CRI-Adult and with Cognitive Avoidance, Acceptation resignation and Emotional Discharge strategies (see table 6). As can be seen, the correlation coefficients were higher between the scales that were conceptually comparable.

Predictive criterion validity

The scores of the first administration of the CRI-Adult were correlated with those of SCL-90-R obtained 4 weeks later, according to the criterion established by APA (1985). Approach and Avoidance scales of CRI-Adult were both correlated with the GSI index of SCL-90-R. The results indicated that avoidance responses correlated moderately and positively with symptomatology (r= .362, p<.001), whereas approach responses correlated significantly but negatively, and with lower intensity with symptomatology (r= -.249, p<.05).

Discussion

The objective of this study was to establish the psychometric properties of the Spanish version of the CRI-Adult (Moos, 1993). Descriptive statistics indicated gender differences. Women used slightly more coping than the men, especially more Seeking Guidance, Cognitive Avoidance and Emotional Discharge strategies. These results were similar to those found by Moos (1993), who stated that women used more Seeking Guidance and Support, Seeking Alternative Rewards, and Emotional Discharge. In addition, the results obtained are in accordance with the literature on gender differences in the use of coping strategies (Tamres, Janicki, & Helgeson, 2002).

The internal consistency was moderate for both men and women and in some cases low, as happens in the studies by Moos (1993) and by Aguilar-Vafaie and Abiari (2007) with adult people.

Table 6
Correlations between the scales of the CRI-Adult and the CSI

CRI-Adult	CSI		
	Problem solving	**Seeking social support**	**Avoidance**
Logical analysis	.53***	.09	-.05
Positive reappraisal	.41***	.20	-.05
Seeking guidance	.37***	**.55*** **	-.24*
Problem solving	**.66*** **	.18	-.21*
Cognitive avoidance	-.18	-.04	**.48*** **
Acceptance-Resignation	-.44***	-.16	**.51*** **
Seeking rewards	.06	.24*	.22*
Emotional discharge	-.09	-.01	**.57*** **
Approach	**.64*** **	.32**	-.16
Avoidance	-.24*	.01	**.65*** **

*** p<.001; ** p<.01; * p<.05

The same phenomenon occurs with children and adolescents (Eyles & Bates, 2005; Forns, Amador, Kirchner, Gómez, & Muro, 2005; Griffith, Dubow, & Hipólito, 2000). The coefficient alphas were somewhat higher for the global scales especially for those of Approach. These coefficients were slightly lower than those found by Moos (1993), but agreed with existing literature. Moos (1993) attributed the fact that these coefficients were moderate to two factors. On the one hand, to the attempt to minimize item redundancy, which meant that the diverse items composing the various scales were relatively independent. On the other hand, «one or two coping responses may alleviate stress and thus reduce the use of alternative responses within the same category» (p. 16). Aguilar-Vafaie and Abiari (2007) argue that although internal consistency was moderately low, especially for Acceptation and Resignation and Seeking Alternative Rewards strategies, the content validity analysis of these dimensions showed heuristic value and justify their inclusion in the test.

As occurs in other studies (Moos, 1993; Walsh & McGrath, 2000) the scales of the CRI-Adult were moderately correlated. The highest coefficients correspond to the scales that share focus and method of coping. At the same time, some correlations between scales that share neither method nor focus were observed. The same phenomenon occurs with CRI for youth (Erickson, Feldman, & Steiner, 1997; Forns et al., 2005). Moos (1993) attributed these associations to the fact that people use approach and avoidance coping simultaneously when faced with a stressor, especially people who experience more severe stressors.

Test-retest reliability (4-week interval) is high and for some scales very high. Among men, test-retest reliability was somewhat higher than among women in nearly all scales, especially on Positive Reappraisal, Cognitive Avoidance, and Approach coping. This data could means that men are more reliable than women when self-reporting coping behaviors. The coefficients of Spanish sample were higher than those of Blalock and Joiner (2000) after a 3- week interval.

As regards the dimensionality of coping, our study has found two factors which closely resemble Approach and Avoidance coping as stated by Moos (1993). Nevertheless, Seeking Alternative Rewards, which is an Avoidant strategy, loaded onto approach factor. Factor analyses for men and for women maintained very similar structures. Our results are in accordance with those of Mohíno, Kirchner and Forns (2004) who observed, with a sample of young inmates, that Seeking Alternative Rewards loaded onto approach factor. The same results were obtained with adolescent populations (Forns et al., 2005; Griffith et al., 2000). The dimensionality of coping is a polemic topic requiring further studies. Nevertheless, the two factor solution in adults is the one that has reached major consensus (one factor of approaching the problem, or problem focused, and another factor of avoiding the problem, or emotion focused).

In main lines, Spanish version of CRI-Adult fits well with the theoretical conception of coping proposed by Moos (1993). Nevertheless, some indications should be given in order to optimize the assessment of coping in Spanish adults: In both genders it is more suitable to assess Approach Coping as a single factor, without distinguishing whether the method is cognitive or behavioral. As regards Avoidance coping, it is more accurate to take into account Cognitive and Behavioral methods for males. On the contrary, for females it is more adequate to assess Avoidance coping as a single factor, without distinguishing between

Cognitive and Behavioral methods. We do not know of any studies on the construct validity of CRI-Adult, except for that of Blalock and Joiner (2000). For these authors the overall goodness of fit for the two-factor model (Avoidant Cognitive coping and Avoidant Behavioral coping) was very good and better than the goodness of fit for the one-factor model (a single factor of Avoidant coping). However, these authors did not consider the gender variable, which in our study provides some differential data.

The Spanish version of CRI-Adult showed a moderate but adequate convergent validity, given that the highest correlation coefficients between CRI-Adult and CSI appear among scales conceptually comparable. We do not know any studies on the convergent validity of CRI-Adult that allow us to make comparisons.

Finally, CRI-Adult showed adequate predictive validity. Avoidance responses predict symptomatology while those of approach protect against psychopathology. These results are in accordance with the extensive bibliography on this important topic (see Compas, Connor-Smith, Saltzman, Thomsen, & Wadsworth, 2001, for a review). Forns et al., (2005), using the Spanish version of CRI- for Youth, obtained similar results and corroborated the relationship between the use of avoidance coping and an increase in psychopathological symptoms as measured by Youth Self-Report (Achenbach, 1991).

The main conclusion of this paper is that men and women obtained similar values on internal consistency, dimensionality of coping, construct validity and convergent and predictive validity. Women presented a more frequent use of coping strategies than men; therefore we encourage the use of independent standards for both genders. Also, in women avoidance coping is a single dimension, with no differentiation between both methods (cognitive and behavioral). A possible explanation for this result is that the frequency of use of both avoidance methods to regulate the emotional state in women is very similar. However, men tend to regulate their emotional states by using more cognitive than behavioral avoidance. In addition, men presented higher test-retest reliability in short time periods. Another interesting conclusion of the study is that Seeking Alternative Rewards was presented as an approach coping strategy, which could be analyzed in future studies. In short, the Spanish version of CRI-Adult denotes adequate psychometric properties that allow the use of this test in adult Spanish populations with warranties of goodness.

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Author's note

The authors want to note that the test was translated, adapted, and reproduced by T. Kirchner and S. Mohíno, with permission from the editor, Psychological Assessment Resources, Inc., 16204 North Florida Avenue Lutz, Florida 33549, using the Coping Responses Inventory by R. Moos, Ph.D. Copyright 1993.

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