

EXPLORATORY FACTOR ANALYSIS OF THE CONTENTS AND STYLES OF IRRATIONAL THOUGHTS ASSESSED BY THE "ATTITUDES AND BELIEFS INVENTORY" (ABI)



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INTRODUCTION & PURPOSE

The aim of this study is to verify the factor structure of a back translated Spanish version (Lega, Caballo and Ellis, 2002) of the *Attitudes and Beliefs Inventory (ABI)* (Burgess, 1990) developed from the perspective of Rational Emotive Behavior Therapy (REBT) by Albert Ellis.

The Spanish version of the ABI is a 48-items self-report inventory using a 5-point Likert scale that assesses rational and irrational attitudes and beliefs. 24-items cover two dimensions of irrationality:

- a) areas of **content** (3 subscales: *Affiliation/Approval* [AA], *Success/Perfectionism* [SP], *Comfort* [C]), and
- b) **styles** of thinking (4 subscales: *Demandingness* [D], *Awfulizing/Catastrophizing* [AC], *Global Self-Rating* [GSR], *Low Frustration Tolerance* [LFT]).

In addition, we analyze the reliability of the ABI's subscales (Cronbach's alpha) and the existence of gender differences in the content and/or styles of irrational thinking.

Participants

250 university students (188 women and 62 men), aged between 19 and 75 years with a mean of 28.5 years ($SD = 14.8$), recruited from the *High School of Public Relations (HSPR)* and the *Faculty of Psychology (PSY)* of the University of Barcelona.

METHOD

Factor analysis

DISTRIBUTION OF SAMPLE BY SEX & STUDIES			
Study/Sex	Men	Women	Total
HSPR	27 (10,8%)	80 (32,0%)	107 (42,8%)
PSY	35 (14,0%)	108 (43,2%)	143 (57,2%)
Total	62 (24,8%)	188 (75,2%)	250 (100%)

The ABI scores are normally distributed in all scales ($p > 0.05$ at Kolmogorov-Smirnov Test), except in D and GRS.

A one-way MANOVA was performed to verify if males and females were different in content and/or style of irrational thinking. All variables comply with Homocedasticity Test ($p > 0,05$).

DETAILS OF THE EXPLORATORY FACTOR ANALYSIS (EFA)	
Number of participants (N)	250
Number of variables (Items)	24
Procedure of determining the number dimensions	Optimal Parallel Analysis (OPA)
Dispersion Matrix	Polychoric correlations
Method for Extraction	Unweighted Least Squares (ULS)
Method for Rotation	Promin
Determinant of the Matrix	0,000051656596814
Bartlett's Statistic	2370,7 (df = 276; p = 0, 000010)
Kaiser-Meyer-Olkin (KMO) Test	0,86082
Factors with eigenvalues > 1	4
Cum. Pct. of variance explained	53,37%
Goodness of Fit Index (GFI)	0,99
Bentler's Simplicity Index (S)	0,80740
Loading Simplicity Index (LS)	0,36194
Root Mean Square of Residuals (RMSR)	0,0394
Expected RMSR (Kelley's criterion)	0,0634

DESCRIPTIVES OF THE ABI SUBSCALES BY SEX					
ABI	Total sample	Men	Women	F	p
AA	Mean = 20,0 (Std. Dev. = 6,1)	18,7 (5,5)	20,4 (6,3)	3,843	0,051086
SP	24,8 (5,2)	23,0 (4,7)	25,4 (5,2)	10,670	0,001242
C	25,2 (4,9)	24,2 (5,1)	25,5 (4,8)	3,270	0,071770
D	23,5 (3,7)	23,2 (3,6)	23,6 (3,8)	0,493	0,483410
AC	17,1 (5,0)	15,3 (4,5)	17,7 (5,0)	11,095	0,000997
GSR	11,5 (4,1)	10,7 (4,2)	11,7 (4,1)	2,824	0,094109
LFT	17,9 (4,6)	16,6 (4,2)	18,3 (4,7)	6,314	0,012616

Women scored significantly higher than men in AC ($d = -0.48$) and LFT ($d = -0.37$) styles. Also, in contents of SP ($d = -0.46$)

Reliability indices

INTERNAL CONSISTENCY FOR THE ABI SUBSCALES							
N=250	AA	SP	C	D	AC	GSR	LFT
Nº Items	8	8	8	6	6	6	6
Mean	19,99	24,80	25,18	23,48	17,12	11,49	17,86
Std. Dev.	6,10	5,20	4,89	3,70	4,97	4,15	4,64
Cronbach's α	0,81	0,72	0,72	0,67	0,81	0,66	0,76
Standardized α	0,81	0,71	0,70	0,69	0,81	0,66	0,75
Average inter-item corr.	0,36	0,24	0,23	0,28	0,42	0,25	0,34

ROTATED LOADING MATRIX (loadings < 0.30 omitted)				
Items (Style - Content)	F ₁	F ₂	F ₃	F ₄
i3 (LFT - C)				0,506
i4 (GSR - AA)		0,516		
i7 (LFT - AA)		0,678		
i8 (GSR - SP)		0,454		
ii (LFT - SP)				0,258
ii2 (GSR - C)		0,602		
ii3 (C - AA)	0,326	0,433		-0,329
ii4 (AC - SP)		0,453		
ii7 (C - SP)	0,314			
ii8 (AC - C)				0,563
i21 (C - C)	0,639	-0,344		0,388
i22 (AC - AA)		0,704		
i25 (C - AA)	0,358			-0,440
i26 (AC - SP)			0,754	
i29 (C - SP)	0,692			
i30 (AC - C)			0,722	
i33 (C - C)	0,648	-0,378		
i34 (AC - AA)			0,860	
i39 (LFT - C)				0,587
i40 (GSR - AA)		0,553		
i43 (LFT - AA)		0,655		
i44 (GSR - SP)		0,677		
i47 (LFT - SP)				0,360
i48 (GSR - C)	-0,341	0,458		

INTER-FACTORS CORRELATION MATRIX				
Factor	F ₁	F ₂	F ₃	F ₄
F ₁	1.00			
F ₂	0,27	1.00		
F ₃	0,47	0,68	1.00	
F ₄	0,50	0,33	0,44	1.00

CONCLUSIONS

The EFA reproduced the main four styles of irrational thinking in relation with the three specific contents of irrational beliefs. However, two factors (F₂ & F₄) showed a complex configuration with important cross-loadings of different items in content and style, and moderate correlation inter-factors. Moreover, most ABI subscales have low internal consistency.

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The factor structure of a back translated Spanish version (Lega, Caballo and Ellis, 2002) of the *Attitudes and Beliefs Inventory (ABI)* (Burgess, 1990) is analyzed in a sample of 250 university students.

The Spanish version of the ABI is a 48-items self-report inventory using a 5-point Likert scale that assesses rational and irrational attitudes and beliefs. 24-items cover two dimensions of irrationality: a) areas of *content* (3 subscales), and b) *styles* of thinking (4 subscales).

An Exploratory Factor Analysis (Parallel Analysis with Unweighted Least Squares method and Promin rotation) was performed with the FACTOR 9.20 software (Lorenzo-Seva and Ferrando, 2013).

The results reproduced the main four *styles* of irrational thinking in relation with the three specific *contents* of irrational beliefs. However, two factors showed a complex configuration with important cross-loadings of different items in content and style. More analyses are needed to review the specific content and style of such items.

References

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