Psychometric Properties of the Spanish Adaptation of the Five Factor Personality Inventory

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Summary: The Five Factor Personality Inventory (FFPI) was translated and adapted to a Spanish population of 567 subjects. A principal component analysis using orthogonal Procrustes rotation replicated the five-component structure of the original FFPI questionnaire. The coefficients of congruence between the loading matrices obtained in the Dutch sample and the Spanish sample were also computed showing high factorial convergence. The Spanish version of the FFPI showed adequate reliability. Further, convergent and discriminant validity were studied using other well-known Big Five and PEN questionnaires. The results fully supported the psychometric properties of the FFPI questionnaire in the present population.

The Big Five dimensional model has become the higher-order personality structure most widely accepted among personality psychologists in the last years (for a review see Digman, 1990; John, 1990; McCrae & Costa, 1987; Wiggins, 1996). This personality structure emerged from factorial analyses that tried to explain individual differences with the fewest possible broadly and consistently replicated dimensions across populations, cross-culturally, under different conditions, and using different methods, for example, self-report and peer-ratings questionnaires and adjective inventories. Thus, the Big Five structure of personality (or Five-Factor Model) has been extensively replicated and provides an integrative descriptive model for personality research (Digman, 1990; John, 1990; Goldberg, 1990; McCrae & John, 1992). The five higher-order factors that have been consistently defined and replicated in this model are (I) Extraversion (Surgency), (II) Agreeableness, (III) Conscientiousness, (IV) Emotional stability vs Neuroticism and (V) Intellect.

The Five-Factor Personality Inventory (FFPI) is one of the more recent instruments developed for the assessment of the Big Five model of personality (Hendriks et al., 1999). This 100-item Dutch questionnaire was based on the Abridged Big Five Dimensional Circumplex model (AB5C; Hofstee, De Raad, & Goldberg, 1992) that combines simple-structure and circumplex representations to map traits of personality according to the two highest loadings in the five dimensions. Item selection of the FFPI was based on the AB5C taxonomic model of traits. The selection of the items was also made taking into account the difficulty of translation of each item to other languages (American-English and German) and the comprehensibility of each item for respondents with a low level of education. The items of the FFPI were written using brief and concrete statements that refer to observable and concrete behaviors (Hofstee, 1991). Both self-rating and external-rating forms are available, so that the FFPI items were written using the third-person of singular.

One of the points of divergence between this questionnaire and other well-known Big Five measures is the different meaning of the fifth factor, traditionally ascribed to Openness to Experience or Intellect. In the FFPI, this factor was referred to as Autonomy; it measures the tendency to take independent decisions without

being influenced by the social environment, and to maintain an independent point of view on topics. This factor did not correlate intensively with Openness to Experience using other Big Five questionnaires (Hendriks et al., 1999). As clearly explained in Perugini and Ercolani (1998), some items of the Creativity or Intellect domains do not satisfy one of the essential ideas of the lexical approach, namely, that all items be truly understandable by laypersons. Thus, after extracting the items related to erudition, the remaining FFPI-FV domain was related to Autonomy without neglecting the traditional intellectual component. In the study by Perugini and Ercolani (1998), this factor correlated strongly with the constructs of self-awareness and capacity for managing new situations (measured with the Autonomy Scale; Bekker, 1993), the generalized self-efficacy scale (Tipton & Worthington, 1984), and the need for cognition scale (Cacioppo & Petty, 1982).

In the present study, the FFPI was translated and adapted into Spanish. The adaptation of the FFPI to the Spanish language should provide a large group of native speakers with a reliable Big Five instrument that made available since its beginnings by the authors. The Spanish version of the FFPI showed adequate reliability and factorial convergence with the original FFPI, which also replicates previous findings in other cross-language studies (see Perugini & Ercolani, 1998).

Materials and Methods

Sample

To compare the psychometric properties of the Spanish and Dutch versions of the FFPI, we used a Spanish sample consisting of 567 undergraduate college students (480 women and 87 men) enrolled in an introductory psychology course at the University of Barcelona, Spain. The mean age for this group was 19.3 (SD = 2.8). Subjects were not paid for their participation in this study.

Procedure

The FFPI (Hendriks, Hofstee, & De Raad, 1999) consists of 100 Likert-type items rated on a 5-point scale. The FFPI assesses a person's scores on the following dimensions: FI (Extraversion), FII (Agreeableness), FIII (Conscientiousness), FIV (Emotional Stability), and FV (Autonomy). The adaptation of the FFPI was done using the back-translation method, a judgmental procedure for investigating the conceptual equivalence (i.e., meaning symmetry) of original and translated versions, which is

necessary for valid cross-cultural comparisons (Berry, 1980). First, a bilingual speaker translated the English version of FFPI into Spanish, and special attention was taken to follow the same rules adopted when writing the items in the original language (see Hofstee, 1991; Hendriks et al., 1999). Second, another bilingual speaker translated the Spanish FFPI back into Dutch. Finally, the original source and the back-translated items were compared for nonequivalence of meaning, and any discrepancies were noted and discussed with the authors of the original FFPI. This iterative process of translation and back-translation was repeated until no further semantic differences were noticed between both questionnaire forms (Brislin, 1980).

Besides reliability analysis, the factor structure of the Spanish version of FFPI was analyzed following the same procedure used in developing the Dutch FFPI version (Hendriks et al., 1999). The item matrix was subjected to principal component analysis followed by orthogonal Procrustes rotation (Cliff, 1966) of the first five principal components, after having partialled out variance because of acquiescent responding. This method prevents against the disturbance of acquiescence on factor structures of personality traits (see Hofstee, Ten Berge, & Hendriks, 1998; Ten Berge, 1999). The target used in the Procrustes rotation was the Dutch loading matrix previously rotated by Hendriks et al. (1999) using normalized varimax (Kaiser, 1958). The Spanish solution was rotated to simple structure, and the interpretation of this simple structure agrees with the interpretation of the Dutch FFPI version. Additionally, we computed the α coefficients of the rotated principal components as proposed by Ten Berge and Hofstee (1999). The coefficients of congruence (Tucker, 1954) between the loading matrices obtained in the Dutch sample and the Spanish Sample were also computed.

Before assessing convergent validity, we calculated the anchored factor (principal component) scores (Hofstee & Hendriks, 1998) for each subject using a PASCAL program provided by the original authors of the questionnaire. These scores are computed applying regular factor weights to the matrix of anchored scores, derived from the raw scores after being expressed as deviations from the scale midpoint and subsequently divided by their standard deviation. The factor weights were established from the Dutch normative sample (Hendriks, Hofstee, & de Raad, in press).

Convergent and discriminant validity was assessed in part of the sample (N = 350) using other well-known personality questionnaires based on the Big Five model of personality and the PEN model (Psychoticism, Extraversion and Neuroticism; Eysenck, Eysenck, & Barret, 1985). As a measure of the five-factor model or Big Five personality taxonomy, a Spanish-translated version of the Big Five Inventory (BFI; John, Donahue, & Kentle,

1991; see also Benet-Martínez & John, 1998) was used. The BFI is a short-form version containing 44 items of the following five factors: Extraversion (FI), Agreeableness (FII), Conscientiousness (FIII), Neuroticism (FIV), and Openness to Experience (FV). The EPQ-R questionnaire (Eysenck, Eysenck, & Barret, 1985) was administered as a reliable measure of the PEN taxonomy, a questionnaire that measures three main basic personality dimensions: Neuroticism (N), Extraversion (E), and Psychoticism (P). The Lie scale was not administered in the present investigation. The Spanish adaptation of this questionnaire has been administered because its reliability and validity have been studied (Aguilar, Tous, & Andrés, 1990). In addition, impulsivity scales (I7; Eysenck, Pearson, Easting, & Allsopp, 1985) were used to map the position of impulsivity on the Big Five structure of personality. The I7 questionnaire includes a 19-dichotomic-item scale of Impulsiveness, a 16-item scale of Risk-taking behavior, and an Empathy scale of 19 items. The Spanish version of I7 was adapted by Luengo, Carrillo de la Peña, and Otero (1991).

Results

Reliability

In Table 1 we present the mean anchored factor scores, reliability estimates, and intercorrelations among the five FFPI scales obtained by unit weighing of the items. We also present the results from the Dutch sample for the sake of comparison. (These data were provided by J. Hendriks.) The magnitude of the coefficient α in the FFPI scales was adequate and acceptable and is practically equal to the coefficients estimates for the original Dutch sample. In terms of the correlation between FFPI scales, a positive significant correlation was obtained between emotional stability and extraversion, between extraversion and autonomy, and between emotional stability and autonomy. FII correlated with a moderate intensity with FIII. As this table shows, the same pattern of correlations was obtained in the Dutch sample. In terms of the mean values observed using the anchored factor score, both the Spanish and Dutch samples appear to have great overlap in FI, FII, and FIII factors. Emotional Stability and Autonomy seem to be slightly less compared to the Dutch reference group.

Factor Structure of FFPI

Factor loadings of each item in the rotated components retained are presented in Table 2 as well as factor vari-

Table 1. Means-anchored factor scores, reliability coefficients, and intercorrelations among the scales of the Spanish version of the Five-Factor Personality Inventory (also included Dutch sample results for the sake of comparison).

| | Spanish sample ($N = 567$) | | | | |
	FI	FII	FIII	FIV	FV
FI	1.00				
FII	0.07	1.00			
FIII	−0.04	0.29**	1.00		
FIV	0.44**	0.15**	0.13**	1.00	
FV	0.52**	−0.00	0.01	.54**	1.00
$\bar{x}$	0.54	2.20	1.01	0.01	0.72
α	0.88	0.84	0.86	0.87	0.84

| | Dutch sample (Hedriks et al., 1999) | | | | |
	FI	FII	FIII	FIV	FV
FI	1.00				
FII	0.15	1.00			
FIII	−0.01	0.34	1.00		
FIV	0.48	0.29	0.13	1.00	
FV	0.53	0.02	0.03	0.48	1.00
$\bar{x}$	0.39	2.18	0.95	0.82	1.18
α	0.93	0.91	0.90	0.92	0.89

Notes: * $p < .05$, ** $p < .01$; FI = Extraversion, FII = Agreeableness; FIII = Conscientiousness, FIV = Emotional Stability, FV = Autonomy. Intercorrelations among the Five scales were obtained upon unit weighting of the items.

ance, factor reliability, and coefficients of congruence. The results clearly indicate the strong congruence with the Dutch factor structure obtained in the Spanish sample: Congruence coefficients for components FI, FII, FIII and FV are *good* (following Tucker's guidelines; see MacCallum, Widaman, Zhang, & Hong, 1999), and the congruence of component FIV is close to being *good*. Of the 100 items, 93 items had their primary loading in the target component ascribed in the original Dutch factor structure; 6 items loaded first in another component having the second highest load on the target component (and being practically equal the magnitude of these loadings); and only one item failed to load on the target component (item 74 "Toca de pies en el suelo," which had a primary load on FIII instead of FIV). In the same table we show the α coefficients of the rotated principal components and the percentage of variance explained by each component.

Convergent and Discriminant Validity

The correlations obtained between FFPI scales and various personality higher-order traits used to assess convergent and discriminant validity are illustrated in Table

Table 2. Result of the principal component analysis followed by a Procrustes rotation of the 5 principal components retained, after having partialled out the variance due to acquiescent responding. Procrustes rotated loadings using the Dutch solution as target, percentage of variance explained, α coefficients of each rotated factor, and coefficients of congruence with the Dutch sample are shown. (Loading values printed in italics indicate the highest loading value for each item.)

	Extraver.	Agreeabl.	Conscien.	Emotional Stability	Autonomy	
	FI	*FII*	*FIII*	*FIV*	*FV*	
it_1	*0.4343*	0.1496	−0.1524	−0.0206	−0.0588	
it_11	*−0.5182*	0.2505	0.0527	−0.0387	−0.3153	
it_16	−0.4191	−0.0878	−0.1124	*−0.4343*	−0.2137	Partial adjust
it_21	*−0.4123*	0.1634	0.0633	−0.0256	−0.1584	
it_26	*0.4813*	0.1463	−0.0661	0.2878	0.1083	
it_31	*−0.6199*	−0.2940	−0.0415	−0.0429	−0.0394	
it_36	*0.5194*	0.0645	−0.0952	0.0451	−0.0548	
it_41	*0.5770*	0.1121	−0.1290	−0.0421	0.0136	
it_46	*−0.5192*	−0.0363	0.0001	−0.0946	−0.2579	
it_51	*0.4312*	0.1268	−0.0223	0.1050	0.1682	
it_56	*−0.6312*	−0.2571	−0.0175	−0.1552	−0.0721	
it_6	*0.6166*	−0.1181	−0.0962	0.0485	0.0911	
it_61	*0.6083*	−0.0120	−0.0472	0.0475	0.1393	
it_66	*−0.6592*	−0.1484	−0.0212	−0.0826	−0.0735	
it_71	*−0.5996*	−0.2335	0.0019	−0.0709	0.0668	
it_76	*0.3949*	0.2081	0.0122	0.1531	0.2524	
it_81	*−0.3494*	−0.0820	−0.2462	−0.1155	0.0715	
it_86	*−0.5066*	0.0686	0.1147	−0.1062	−0.3241	
it_91	*0.6933*	0.0506	−0.0768	0.0244	0.0785	
it_96	*0.5598*	0.0745	−0.0233	0.3499	0.0086	
it_2	−0.0754	−0.3417	0.0812	*−0.4406*	−0.0430	Partial adjust
it_7	0.1577	*0.4329*	0.0738	−0.0477	−0.0415	
it_12	0.2203	*0.4583*	0.1216	−0.0470	0.0463	
it_17	0.0602	*0.5046*	0.0935	−0.0016	0.0084	
it_22	−0.1771	*0.3442*	0.3192	0.0433	−0.0341	
it_27	0.0735	*0.5077*	−0.0479	0.1973	0.1811	
it_32	−0.0958	*−0.5040*	−0.0742	0.0765	−0.0754	
it_37	−0.0272	*0.3401*	0.1444	0.0575	0.0004	
it_42	0.0453	*−0.3203*	−0.1014	−0.1432	−0.0195	
it_47	0.1013	*0.6354*	0.0743	0.0084	−0.0208	
it_52	0.0503	*−0.5735*	−0.1293	0.0662	−0.0277	
it_57	0.2236	*0.3634*	0.0910	−0.0469	−0.1065	
it_62	0.1459	*−0.3496*	−0.2631	−0.0531	−0.2225	
it_67	0.1734	*0.4394*	−0.0208	−0.0344	−0.0166	
it_72	0.0840	*−0.6513*	−0.0339	−0.0804	0.0183	
it_77	0.1948	*−0.6516*	0.0726	0.0413	0.1703	
it_82	0.3442	*−0.5317*	−0.0236	0.1056	0.1753	
it_87	0.0072	*0.5443*	0.1298	0.0644	0.2057	
it_92	0.1485	*−0.6524*	0.0463	−0.0096	0.0155	
it_97	0.2106	*−0.5835*	−0.1224	−0.0101	−0.0909	
it_3	0.1550	0.0070	*−0.5525*	0.0042	0.0164	
it_8	−0.1519	−0.0420	*0.6484*	0.0990	−0.0196	
it_13	−0.0846	−0.0226	*0.6179*	0.0485	−0.0082	
it_18	−0.0334	−0.0554	*−0.5605*	−0.0693	−0.0314	
it_23	−0.2117	−0.2157	*−0.4552*	−0.0373	0.1730	
it_28	0.3075	−0.0335	*−0.4761*	0.0043	0.2239	
it_33	−0.0446	0.0311	*−0.6224*	−0.0783	−0.0479	
it_38	0.0458	0.0305	*0.5706*	0.0657	0.1310	
it_43	0.0032	0.2875	*0.4091*	0.0752	−0.0511	
it_48	−0.0507	0.0439	*0.6961*	0.0784	0.0205	
it_53	0.0920	−0.1803	*−0.3930*	0.0804	0.1460	
it_58	−0.1114	−0.0284	*0.4964*	−0.0494	−0.0051	
it_63	−0.0969	−0.0525	*−0.5185*	−0.0230	−0.2821	

Table 2 continued

	Extraver.	Agreeabl.	Conscien.	Emotional Stability	Autonomy
	FI	*FII*	*FIII*	*FIV*	*FV*
it_68	−0.0917	0.1274	*0.5009*	*0.0269*	−0.2206
it_73	−0.0183	0.0021	*0.4525*	*0.0280*	0.2953
it_78	−0.0469	0.0069	*−0.5168*	−0.2137	−0.2373
it_83	0.0120	0.2595	*0.3767*	−0.0103	0.2976
it_88	−0.0700	0.1202	*0.3212*	−0.0095	0.3026
it_93	0.0362	−0.1935	*−0.5231*	−0.0993	0.2598
it_98	−0.0567	−0.1449	*−0.5274*	0.0189	−0.2276
it_4	−0.2767	−0.0884	−0.1531	*−0.5505*	−0.1059
it_9	0.2196	−0.0179	−0.0065	*0.7125*	*0.0022*
it_14	−0.1260	−0.1842	−0.1846	*−0.2010*	−0.1236
it_19	0.2939	0.0436	−0.0525	*0.7392*	*0.0626*
it_24	−0.2729	0.1111	0.0648	*−0.4209*	−0.2840
it_29	*−0.3384*	*0.1107*	0.1936	0.2980	0.0575 Partial adjust
it_34	−0.3014	−0.0126	−0.0623	*−0.6049*	−0.0902
it_39	−0.2546	−0.0566	−0.0147	*−0.6617*	−0.1476
it_44	0.1615	0.0554	−0.0576	*0.5179*	0.3293
it_49	0.0521	−0.0498	0.0473	*0.3160*	0.2554
it_54	0.0214	0.0168	0.0460	*−0.5778*	−0.1668
it_59	0.3296	0.1231	−0.0214	*0.7095*	*0.0368*
it_64	0.1696	−0.0750	−0.2502	*0.4511*	*0.0156*
it_69	−0.1573	0.1846	0.2268	*0.4366*	0.1325
it_74	−0.1121	0.1527	*0.3967*	*0.1473*	0.2304 Failed
it_79	−0.0743	−0.0686	−0.0956	*−0.4954*	−0.2783
it_84	−0.2964	−0.0151	−0.0338	*−0.6341*	−0.0117
it_89	−0.2362	−0.3072	−0.0215	*−0.3846*	*0.0345*
it_94	0.0015	0.2498	0.2776	*−0.3455*	*0.1466*
it_99	0.0134	0.0608	−0.0784	*0.6273*	0.1902
it_5	−0.0990	0.0381	0.1919	0.0043	*−0.4045*
it_10	−0.0104	−0.1674	−0.0876	0.0463	*−0.5595*
it_15	0.0163	0.0095	−0.0591	0.2266	*0.4857*
it_20	0.0629	0.1399	0.2872	0.1484	*0.3596*
it_25	−0.0541	−0.0151	−0.0038	−0.1252	*−0.4395*
it_30	−0.2102	−0.0523	0.0890	*−0.5671*	−0.3305 Partial adjust
it_35	0.1676	0.0195	−0.1664	0.1644	*0.4623*
it_40	−0.2873	0.0876	−0.0048	−0.0139	*−0.5942*
it_45	0.0940	0.1772	−0.0143	*0.3103*	0.3006 Partial adjust
it_50	0.3607	−0.2322	−0.0309	0.1503	*0.4591*
it_55	−0.1349	0.2232	0.0633	−0.1297	*−0.3452*
it_60	−0.3229	−0.0216	0.0171	−0.3323	*−0.3812*
it_65	−0.4273	0.1876	0.0078	−0.1164	*−0.5217*
it_70	−0.1449	−0.0079	0.1867	0.0552	*−0.5930*
it_75	0.1790	−0.0432	0.0674	0.1677	*0.4466*
it_80	0.0891	−0.0664	−0.0293	0.1502	*0.4425*
it_85	0.1068	0.0999	0.1628	0.2915	*0.4048*
it_90	−0.1532	0.0210	−0.0665	−0.1887	*−0.4185*
it_95	0.1642	−0.0368	−0.1427	0.0346	*0.3226*
it_100	0.2576	−0.0972	−0.1623	0.1274	*0.3304*
% variance	8.21	6.38	6.66	7.21	5.83
Factor Reliability	0.84	0.84	0.84	0.82	0.78
Congruence	0.95	0.92	0.93	0.91	0.94

Table 3. Intercorrelations between FFPI scales and the Big Five Inventory (BFI), Eysenck Personality Questionnaire Revised (EPQ-R), and I7 scales.

	FFPI				
	FI	FII	FIII	FIV	FV
BFI					
FI	0.74**	−0.00	−0.14*	0.16**	0.31**
FII	0.15**	0.59**	0.14*	0.16**	−0.11
FIII	0.06	0.12*	0.74**	0.13*	0.12*
FIV	−0.10	−0.10	0.02	−0.74**	−0.14*
FV	0.19**	0.06	−0.13*	0.10	0.48**
EPQ-R					
E	0.69**	−0.03	−0.19**	0.17**	0.27**
N	−0.21**	−0.15**	0.04	−0.70**	−0.17**
P	−0.04	−0.12*	−0.52	−0.02	0.31**
I7					
IMP	0.16**	−0.16**	−0.51**	−0.18**	0.09
RT	0.08	0.08	−0.33**	0.21**	0.28**
EMP	0.07	0.28**	0.01	−0.35**	−0.19**

Notes: N = 350, * $p < .05$, ** $p < .01$; FI = Extraversion, FII = Agreeableness, FIII = Conscientiousness, FIV = Emotional Stability, FV = Autonomy; E = Extraversion, N = Neuroticism, P = Psychoticism; IMP = Impulsivity; RT = Risk-taking; EMP = Empathy.

3. The pattern of correlations obtained between Extraversion or Neuroticism and the corresponding FI and FIV FFPI scales were practically similar for both BFI and EPQ-R questionnaires. Also, Conscientiousness BFI correlated strongly with the corresponding factor of FFPI inventory. Agreeableness of the BFI correlated with FII scale of FFPI, although with less intensity. However, the correlation obtained between both FV factors from BFI (Openness to Experience) and FFPI (Autonomy) was lower than the other convergent correlations, with a moderate intensity. Psychoticism correlated mainly with Conscientiousness and moderately with Autonomy.

A strong negative relationship was observed between Conscientiousness and Impulsivity. The Risk-taking scale did not correlate strongly with any of the factors, although moderate correlations were observed with FIII−, FIV+, and FV+.

Principal Component Analysis of all the Scales

A principal component analysis followed by normalized varimax rotation (Kaiser, 1958) was performed with all the scales used in the present investigation, extracting 5 components that explain approximately 73% of variance of the original matrix of intercorrelations between the scales (see Table 4). As can be observed, the factors correspond clearly with the Big Five model organization:

Table 4. Result of the principal component analysis followed by normalized varimax rotation of all the personality scales used in this study.

	1st comp.	2nd comp.	3rd comp.	4th comp.	5th comp.
BFIV	0.90				
FIV	−0.88				
N	0.87				
EMP	0.55				0.49
FIII		−0.91			
BFIII		−0.83			
P		0.64		0.42	
IMP	0.29	0.62	0.32		
RT	−0.25	0.47		0.35	
FI			0.91		
BFI			0.87		
E			0.84		
FV				0.87	
BFV			0.29	0.70	
FII					0.88
BFII					0.80
% variance	17.9	16.37	16.35	11.34	11.31

Notes: N = 350; FI = FFPI-Extraversion, FII = FFPI-Agreeableness, FIII = FFPI-Conscientiousness, FIV = FFPI-Emotional Stability, FV = FFPI-Autonomy; BFI = BFI-Extraversion, BFII = BFI-Agreeableness, BFIII = BFI-Conscientiousness, BFIV = BFI-Emotional Stability, BFV = BFI-Openness to Experience; E = Extraversion, N = Neuroticism, P = Psychoticism; IMP = Impulsivity; RT = Risk-taking; EMP = Empathy; factor loadings less than 0.25 were omitted.

Neuroticism (FIV–), Extraversion (FI), Conscientiousness (FIII), Agreeableness (FII), and Openness to Experience (FV). Both Impulsivity and Psychoticism loaded negatively in the FIII component, while the Risk-taking scale was split between FV and FIII components.

Discussion

The present study assesses the psychometric properties of the Spanish adaptation of the FFPI questionnaire. Results from the principal component analysis using orthogonal Procrustes rotation show that the five-component structure of the original FFPI questionnaire can be replicated in other languages (see also Perugini & Ercolani, 1998). The stability of the Dutch factor structure at the item level analysis was clearly demonstrated and points to the special emphasis of the original authors in the process of selection of the items initially done considering three languages: Dutch, English, and German. Also, the internal consistency of each of these FFPI scales was moderately high, as previously reported from the original Dutch samples (Hendriks et al., 1999). Thus, this study provides support for cross-language convergence of the FFPI at both the scale and the item level, and clearly shows that the results from the Dutch sample can be generalized to Spanish samples.

The pattern of correlations obtained between FFPI scales was practically similar to the pattern observed in the Dutch sample. Before discussing this, we should consider that the item-selection process of the original FFPI allows items to have secondary loadings on the Big Five factors. However, this process does not necessarily imply that the FFPI scales have to be correlated, so that these correlations depend on how the positive and negative secondary loadings are balanced with the other factors in question. For example, the positive correlation between Extraversion and Agreeableness reflects the presence of more positive secondary loadings than negative ones. This objective contrasts with the preferred goal in other scales, where an orthogonal structure of factors is encouraged and thus non-factor-pure items were usually discarded. In terms of the structure reflected in this FFPI matrix and its comparison with the correlation patterns obtained in other Big Five studies (for a comparison of fourteen studies using the Big Five model in a recent study, see Digman, 1997), some points deserve some attention. First, in the studies reported by Digman, only four studies found a correlation between Emotional stability and Intellect larger than .35 – a result that differs from our studies, where a stronger relationship was found between both factors. This discrepancy is possibly due to the different content assessed in FFPI

Autonomy scale, as reported by Perugini and Ercolani (1998). Second, in our study, Autonomy (FV) also correlated strongly with Extraversion. This pattern is similar to the correlation between Intellect and Extraversion clearly present in all the studies reported by Digman (1997). In this study, the systematic correlation between FI and FV emerged as a higher-order factor joining extraversion and intellect domains. Third, in our study a systematic positive relationship was also found for emotional stability and extraversion. This pattern was also present in the other Big Five studies (Digman, 1997). However, the magnitude of this relationship using FFPI was higher than in the studies reported by Digman (only in one study was this correlation above .45, and in nine studies this correlation was between .20 and .37). Finally, the FII and FIV factors used to be strongly related in Big Five studies and emerged as a common higher-order factor joining also FIII. However, in both samples using FFPI the magnitude of this correlation was reduced, especially in the Spanish sample, pointing to a more independent status of both dimensions in Spanish culture. The same result was obtained in the study of Benet-Martínez and John (1998) when comparing English and Spanish samples.

The convergent and discriminant validity of the Spanish version of the FFPI has been useful for establishing which constructs measured with other related questionnaires from the Big Five or the PEN models overlap and are relevant to the five dimensions measured by the questionnaire, and which constructs were practically independent. Strong relationships and overlaps were found between both Big Five questionnaires for Extraversion (FI), Neuroticism (FIV–) and Conscientiousness (FIII) scales and with less intensity for Agreeableness (FII). This replicates the findings in the Dutch sample (Hendriks et al., 1999). Although FV scales (Openness to Experience and Autonomy) from both Big Five questionnaires correlated moderately, the pattern of correlations between Autonomy and the other scales (e. g., with BFI FI scale) shows that the construct measured was different from the traditional construct of openness to experience.

From the comparison with the PEN model is clear that Extraversion and Neuroticism traits are well represented in the FFPI FI and FIV factors. Psychoticism was negatively related to Conscientiousness, as should be expected from the history of the development of this scale and because of the migration of impulsiveness items from Extraversion to Psychoticism (Eysenck et al., 1985). This is also corroborated by the strong relationship between Impulsiveness and Conscientiousness, which raises some doubts about the presence of an impulsiveness scale in the Emotional Stability factor of the NEO-PI-R questionnaire (Costa & McCrae, 1992). A similar result

was found by Luengo, Romero, and Gomez (1998). Besides, comparing the FFPI questionnaire with a self-rating instrument to assess personality disorders, Hendriks et al. (1999) found that Antisocial personality, classically related to the impulsiveness trait, was significantly correlated with FIII. Also, Borderline disorder, which is mainly characterized by a tendency to manifest impulsive emotional discontrol, was primarily related to FIV and secondarily to FIII. This result clearly maps impulsiveness to the FIII facet domain. In terms of the correlations observed for the FV factor and the other scales, a positive correlation was found between Autonomy and Risk-taking. This correlation should corroborate the leader position of this factor in autonomous decision making in a nonimpulsive way (notice the lack of correlation between Autonomy and Impulsiveness). This result completely agrees with the interpretation of the Autonomy scale provided in the study of Perugini and Ercolani (1998). Because of the pattern of correlations found (see above), they consider the FV factor as the capacity for autonomous decision-making and point out the importance of this factor in the prediction of job performance requiring autonomy. Besides, the correlation found in this study between Capacity of Managing New Situations (Bekker, 1993) and the FFPI FV is similar to the relationship we found between risk-taking and the FV factor. This Autonomy Scale (Bekker, 1993) assess the capacity of not feeling uncomfortable in new situations and being inclined to explore them, a content clearly linked to the risk-taking behavior domain. Considering these results, the FV scale is measuring in part the willingness to explore new situations and take calculated risks when an autonomous decision is required.

In this study we studied the psychometric properties of a European Five Factor questionnaire (FFPI) which consists of 100 brief and concrete items and should encourage personality research in Castilian language populations. The results showed a high degree of reliability and factorial congruence with the original study and a good degree of construct validity with other well-known personality questionnaires.

Acknowledgments

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