

Psychometric properties of the Spanish version of the Frost Multidimensional Perfectionism Scale in women

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This instrumental study was designed to analyze the psychometric properties of the Spanish version of the Frost Multidimensional Perfectionism Scale (FMPS). The total sample was made up of 582 female college students, with a mean age of 21.68 (SD= 4.45). The results of confirmatory factor analysis identified the six-factor solution proposed by the original authors as the best factor structure, with acceptable fit indices. Cronbach's alpha coefficient was .93 for the FMPS total score and ranged from .74 to .91 for the subscales. Test-retest reliability suggested a good temporal stability of the FMPS total score [ICC= .89 (95% CI= .80-.94)] and its subscales. Results showed moderate to high associations between the Spanish version of the FMPS and other measures of perfectionism. The Spanish version of FMPS has shown satisfactory psychometric properties to be used in women. Future research should replicate these findings in broader samples, in clinical populations, and use longitudinal designs to determine whether perfectionism is a risk factor for psychopathology in women.

Propiedades psicométricas de la versión española de la Escala Multidimensional de Perfeccionismo de Frost en mujeres. Este estudio instrumental se diseñó para estudiar las propiedades psicométricas de la versión española de la Escala Multidimensional de Perfeccionismo de Frost (FMPS). La muestra total fue de 582 mujeres, estudiantes universitarias, con una edad media de 21,68 años (DT= 4,45). Los resultados del análisis factorial confirmatorio identificaron los seis factores propuestos por Frost et al. (1990) como la mejor estructura factorial, con índices de ajuste aceptables. El coeficiente alfa de Cronbach fue de .93 para la puntuación total del FMPS, y entre .71 y .91 para las diferentes subescalas. La fiabilidad test-retest sugirió una buena estabilidad temporal de la puntuación total del FMPS [CCI= 0.89 (95% IC= .80-.94)] y de sus subescalas. Se observaron asociaciones de moderadas a fuertes entre la versión española del FMPS y otras medidas de perfeccionismo. La versión española del FMPS ha mostrado buenas propiedades psicométricas para ser aplicada en mujeres. Futuras investigaciones deberían replicar estos hallazgos en muestras más amplias, en población clínica y utilizar diseños longitudinales para determinar si el perfeccionismo es un factor de riesgo para la psicopatología en las mujeres.

Perfectionist people are generally described as pursuing high personal standards for performance, rigidly adhering to them, and defining their self-worth in terms of their achieving to these standards (Burns, 1980; Hollender, 1978). Theoretical and research interest in this personality construct of perfectionism has grown markedly over the last decade. It appears to play a specific role in the etiology, maintenance and course of certain psychopathological problems more prevalent in women, including eating disorders (Nilsson, Sundbom, & Hägglöf, 2008) depression and anxiety (Shafran & Mansell, 2001) as well as psychological distress in pregnancy (Macedo et al., 2009), and postpartum depression (Mazzeo et al., 2006).

Frost, Marten, Lahart, and Roseblate (1990) were the first authors who developed a self-reported measure to assess perfectionism from a multidimensional perspective, entitled Frost Multidimensional Perfectionism Scale (FMPS) (Frost et al., 1990). The FMPS contains 35 items grouped into 6 factors or subscales: *Personal Standards* (setting high standards for evaluation), *Concern over Mistakes* (reflecting negative reactions to errors), *Doubt about Actions* (the tendency to doubt about one's ability), *Parental Expectations* (the belief that one's parents set very high standards), *Parental Criticism* (the belief that one's parents were overly critical) and *Organization* (the importance placed on orderliness). Some subsequent studies have found support for the original six factor structure of the FMPS (Parker & Adkins, 1995; Stumpf & Parker, 2000) while others have arrived at divergent solutions. A three-factor solution with interpretable factors and high internal consistency was proposed by Purdon, Antony, and Swinson (1999) and a four-factor structure was suggested by several researchers (Harvey, Pallant, & Harvey, 2004; Hawkins, Watt, & Sinclair, 2006; Stöber, 1998; Stumpf & Parker, 2000). Cox, Enns,

and Clara (2002) obtained five of the six original factors, but they used a refined scale containing only 22 of the original 35 items. The FMPS has been translated into German (Altstötter-Gleich & Bergemann, 2006), French (Rhéaume, Freeston, Dugas, Letarte, & Ladouceur, 1995) and Chinese (Cheng et al., 1999), showing good psychometric properties.

Hewitt and Flett (1991) similarly designed a self-reported measure of perfectionism: the Hewitt Multidimensional Perfectionism Scale (HMPS) (Hewitt & Flett, 1991). They argued that in addition to holding perfectionistic standards for themselves (*Self-Oriented Perfectionism*), individuals can hold perfectionistic standards for others (*Other-Oriented Perfectionism*) and can perceive that others hold perfectionistic standards for them (*Socially Prescribed Perfectionism*). Although the HMPS is related to the perfectionism scale developed by Frost et al., (1990), they do not overlap entirely (Enns & Cox, 2002; Hewitt & Flett, 2004).

The results of a factor analysis of the nine combined subscales of the FMPS and the HMPS indicated a two-factor solution that Frost, Heimberg, Holt, and Mattia (1993) interpreted as reflecting two central components of perfectionism construct: «Maladaptive evaluation concerns», which included *Concern over Mistakes*, *Parental Expectations*, *Parental Criticism*, *Doubt about Actions* and *Socially Prescribed Perfectionism* subscales and were positively correlated with depression and negative affectivity, and «Positive achievement striving», which included *Personal Standards*, *Organization*, *Self-Oriented Perfectionism* and *Other-Oriented Perfectionism* subscales and were positively correlated with positive affectivity (Frost et al., 1993). These negative and positive facets of perfectionism were also confirmed by Hawkins et al., (2006), Stumpf and Parker (2000) and Terry-Short, Glynn Owens, Slade, and Dewey (1995). In a similar way, several studies showed that some dimensions of perfectionism assessed by the FMPS and the HMPS are most strongly associated with psychopathology than others, in both clinical (Hewitt, Flett, & Ediger, 1996; Sassaroli et al., 2008) and nonclinical adult samples (Di Bartolo, Li, & Frost, 2008; Macedo et al., 2009). This assumption highlights the importance of having adequate instruments to measure perfectionism in clinical practice.

As far as we know, the FMPS has not been used in Spanish population. The purpose of the present research was to analyze the psychometric properties of the Frost Multidimensional Perfectionism Scale in its Spanish version to provide a well-adapted, valid and reliable instrument to study Perfectionism in women.

Method

Participants

The total sample consisted of 582 undergraduate female students from the Faculties of Psychology and Philosophy and Arts at a public university. The mean age of participants was 21.68 (SD= 4.45).

Materials

Multidimensional perfectionism scale (FMPS). The FMPS (Frost et al., 1990) is a 35 item, 5-point Likert (1 to 5) scale designed to measure perfectionism and includes 6 dimensions of perfectionism: *Concern over Mistakes*, *Doubts about Actions*, *Personal Standards*, *Parental Expectations*, *Parental Criticism* and *Organization*. The English original version demonstrated good psychometric properties: internal consistencies (α) for the subscales ranged

from .77 to .93 and the resulting total perfectionism scales scores showed large correlations with other perfectionism measures (BPS, $r= .85$; EDI-P, $r= .59$). The translation and adaptation was carried out using the back-translation procedure following international guidelines (Balluerka, Gorostiaga, Alonso-Arbiol, & Haranburu, 2007). The Spanish version of the FMPS is presented in Figure 1.

ESCALA MULTIDIMENSIONAL DE PERFECCIONISMO (FMPS: Frost et al., 1990)					
Por favor, ponga un círculo alrededor del número que mejor corresponda a su grado de acuerdo en cada ítem. Utilice la clasificación siguiente:					
	En total desacuerdo		Completamente de acuerdo		
	1	2	3	4	5
1. Mis padres me fijaron metas muy altas	1	2	3	4	5
2. La organización es muy importante para mí	1	2	3	4	5
3. Cuando era niño/a fui castigado por no hacer las cosas a la perfección	1	2	3	4	5
4. Si no me fijo metas muy elevadas probablemente acabaré siendo una persona de segunda categoría	1	2	3	4	5
5. Mis padres nunca intentaron entender mis errores	1	2	3	4	5
6. Es importante para mí ser absolutamente competente en todo lo que hago	1	2	3	4	5
7. Soy una persona ordenada	1	2	3	4	5
8. Intento ser una persona organizada	1	2	3	4	5
9. Si fallo en el trabajo, en la escuela o en casa soy un fracaso como persona	1	2	3	4	5
10. Debo preocuparme si cometo un error	1	2	3	4	5
11. Mis padres querían que yo fuera el/la mejor en todo	1	2	3	4	5
12. Me fijo metas más elevadas que la mayoría de la gente	1	2	3	4	5
13. Si alguien hace mejor que yo las cosas en el trabajo, en la escuela o en casa me siento como si hubiera fracasado completamente	1	2	3	4	5
14. Si fallo en parte, es tan malo como fracasar completamente	1	2	3	4	5
15. Para mi familia solo son buenos los resultados excelentes	1	2	3	4	5
16. Soy muy bueno/a concentrando mis esfuerzos para alcanzar una meta	1	2	3	4	5
17. Incluso cuando hago algo muy cuidadosamente, a menudo siento que no lo he hecho del todo bien	1	2	3	4	5
18. Odio no ser el/la mejor en todo lo que hago	1	2	3	4	5
19. Me propongo metas excesivamente altas	1	2	3	4	5
20. Mis padres han esperado grandes cosas de mí	1	2	3	4	5
21. La gente probablemente tendrá peor opinión de mí si cometo un error	1	2	3	4	5
22. Pienso que nunca llegaré a satisfacer las expectativas de mis padres	1	2	3	4	5
23. Si no hago las cosas tan bien como el resto de personas quiere decir que soy inferior a ellas	1	2	3	4	5
24. Otras personas parecen conformarse con menos que yo	1	2	3	4	5
25. Si no lo hago bien siempre, la gente no me respetará	1	2	3	4	5
26. Mis padres siempre han tenido más expectativas sobre mi futuro que yo	1	2	3	4	5
27. Trato de ser una persona ordenada	1	2	3	4	5
28. En general tengo dudas acerca de lo que hago	1	2	3	4	5
29. La limpieza tiene mucha importancia para mí	1	2	3	4	5
30. Espero hacer las cosas de cada día mejor que la mayoría de la gente	1	2	3	4	5
31. Soy una persona organizada	1	2	3	4	5
32. Tiendo a atrasarme en mi trabajo porque repito las cosas una y otra vez	1	2	3	4	5
33. Me lleva mucho tiempo hacer las cosas correctamente	1	2	3	4	5
34. Cuantos menos errores cometa más personas me querrán	1	2	3	4	5
35. Siento que nunca cumpliré las expectativas de mis padres	1	2	3	4	5

Figure 1. Spanish version of the Frost Multidimensional Perfectionism Scale

Multidimensional perfectionism scale (HMPS). The HMPS (Hewitt & Flett, 1991) is a 45 item, 7-point Likert (1 to 7) scale used to assess 3 dimensions of perfectionism: *Self-Oriented Perfectionism*, *Social Prescribed Perfectionism* and *Other-Oriented Perfectionism*. The reliability and validity of this scale has been demonstrated in clinical and nonclinical samples (Hewitt & Flett, 2004). The authors are not aware of the existence of a Spanish version of the HMPS. The Spanish version of the HMPS was also carried out following international guidelines (Balluerka et al., 2007).

Temperament and character inventory-revised (TCI-R). The TCI-R (Cloninger, 1999) is a 240-item, 5-point Likert (1 to 5) inventory measuring 4 temperamental dimensions and 3 character dimensions of personality. For this study we used the temperament dimension of *Persistence*. It has 35 items grouped into 4 subscales: *Eagerness of effort*, *Work hardened*, *Ambition* and *Perfectionism*. *Persistence* has been associated with perfectionism, especially with those aspects related to a strong motivation for oneself to be perfect, setting exacting standards for oneself, and evaluating one's own behaviour stringently (Kobori, Yamagata, & Kijima, 2005). In the present study, we used the TCI-R in its Spanish validation (Gutiérrez-Zotes et al., 2004).

Eating disorders inventory-2 (EDI-2). The EDI-2 (Garner, 1991) is a 91-item, 6-point Likert (0 to 5) self-report questionnaire with 11 subscales designed to evaluate eating attitudes and symptoms associated to eating disorders. For this study we used the *Perfectionism* subscale (6 items) of the EDI-2 in its Spanish validation (Garner, 1998). In other studies, *Perfectionism* subscale has been significantly and positively correlated with all FMPS subscales, with the exception of *Organization* (Chang, Ivezaj, Downey, Kashima, & Morady, 2008; Frost et al., 1990).

Procedure

Undergraduate women were invited to participate by an announcement at a public university. One of the researchers fully explained the study and obtained the signed informed consent. All the participants (N= 582) fulfilled the Spanish version of the FMPS. Two subsamples were randomly selected to study the correlation between the FMPS and other perfectionism scales (N= 190) and to determine its test-retest reliability one month later (N= 40). The study protocol was approved by the institutional review board.

Data analysis

All variables were tested for normality. Descriptive analyses were conducted for study group characteristics.

A Confirmatory Factor Analysis (CFA) was carried out to test the factor structures proposed in previous studies. It was conducted with Amos 7.0 (Arbuckle, 2006) and EQS 6.1 (Bentler, 2004), using maximum likelihood procedure as the technique for parameter estimation (Hoyle, 1995). All latent factors were allowed to covary. The present study used multiple statistical test and indexes designed to assess the goodness of fit of data to a proposed model because each type has potential strengths and weaknesses. The fit indices used in the present study included the Comparative Fit Index (CFI), the Incremental Fit Index (IFI), the Root Mean Square Error of Approximation (RMSEA), the Standardized Root Mean square Residual (SRMR) and Relative chi-square (χ^2/df). In the literature one will find different rules of thumb, depending

on the authority cited. Traditionally, CFI and IFI values $\geq .90$ have been accepted as indicators of a good fit; RMSEA values $\leq .05$ or $.08$ have been considered as indicators of a good and acceptable fit respectively; SRMR $\leq .06$ are recommended; and χ^2/df ratios < 2 to 5 indicates acceptable model fits (Browne & Cudeck, 1993; Byrne, 1998; Byrne, 2001; Hoyle & Panter, 1995; Marsh, Hau & Wen, 2004).

Cronbach's alpha reliability coefficient (α), the alpha estimate when an item is deleted (α -item) and correlations of each item with their corrected scale (r_{i-s}) were calculated. Correlation coefficients greater than $.40$ are recommended (Stewart & Ware, 1992). Test retest reliability was conducted using the intraclass correlation coefficient (ICC) along with the 95% confidence interval (CI), using the agreement levels rating suggested by Landis and Koch (1977) to interpret the results. Correlation analyses were used to study the association of FMPS with other measures of perfectionism. Analyses were performed with the SPSS (version 15.0) computer program. Statistical significance was set at $p < .05$.

Results

Sample description

The mean age of the total sample (N= 582 women) was 21.68 (SD= 4.45). The vast majority of women were single (80.3%) and sixty percent lived with their family. Half of them combined work with studying (53.8%). Most participants reported absence of personal psychiatric history (77.3%) or family psychiatric history (74.9%). There were no significant differences in demographic data between the total sample (N= 582) and the subsamples used to study the association between the Spanish version of the FMPS and other perfectionism measures (N= 190) and the test-retest reliability (N= 40).

Confirmatory factor analysis

Table 1 shows the fit indices corresponding to the six-factor model proposed by the original authors (Frost et al., 1990). Taking into account previous literature, we also tested the four factor model proposed by Stöber (1998) and the three-factor model proposed by Purdon et al., (1999). Comparing the three models, the six-factor model obtained better fit indices: SRMR values $\leq .06$, $\chi^2/df < 5$, RMSEA $< .08$ and CFI and IFI values close to $.90$ indicated an acceptable fit. Figure 2 shows the six-factor model.

Reliability

FMPS reliability results are in Table 2. Cronbach's alpha coefficient was $.93$ for the FMPS total score. The Cronbach's alpha coefficients for subscales ranged from $.74$ to $.91$ and all corrected item-scale correlations were $\geq .40$. Cronbach's alpha coefficients did not increase when an item was deleted, except for items 3 (*Parental Criticism*) and 29 (*Organization*), but only by $.01$.

To determine test-retest reliability (Table 2), the Spanish version of the FMPS was administered 1 month later to a randomized selected sample of 40 women. An intraclass correlation coefficient (ICC) of $.89$ (95% CI= $.80-.94$, $p < .001$) was obtained for the FMPS total score. Test-retest reliability for the subscales ranged between $.82$ (95% CI= $.66-.90$, $p < .001$) and $.94$ (95% CI= $.88-.97$, $p < .001$).

Table 1
Fit indices for the proposed models

	χ^2 (d.f)	p	χ^2 / d.f	CFI	IFI	RMSEA (CI)	p close fit	SRMR
6F model (Frost et al., 1990)	1973.43 (545)	<.001	3.62	.87	.87	.07 (.06-.07)	<.001	.06
4F model (Stoeber et al, 1998)	2435.22 (554)	<.001	4.40	.83	.83	.08 (.07-.08)	<.001	.07
3F model (Purdon et al., 1999)	3339.75 (524)	<.001	6.37	.74	.74	.10 (.09-.10)	<.001	.14

Note: Model: 6F, Six factor model; 4F, Four factor model; 3F, Three factor model.
Indexes: SRMR= Standardized root mean square residual; RMSEA= Root mean square error of approximation (CI= Confidence interval at 90%); CFI, Comparative Fit Index, IFI, Incremental Fit Index



Figure 2. CFA: Six factor structure of the Spanish version of the FMPS (EQS 6.1 program).
Note: PS, Personal Standards; PE, Parental Expectations; PC, Parental Criticism; CM, Concern over Mistakes; O, Organization; DA, Doubt about Actions

Table 3 shows that all pairs of associations among the subscales of the questionnaire were significant ($p < .01$) except for *Organization* and *Parental Criticism*, and fell into the range of .04 to .70. The strongest correlation was found between *Parental Expectations* and *Parental Criticism*. *Concern over Mistakes*, *Personal Standards* and *Doubt about Actions* were also moderately associated. The exception was the *Organization* subscale, with a weak pattern of correlations with other subscales. All six subscales showed from moderate to high correlations with the FMPS total score.

Table 2
Means, standard deviations and reliability of the Spanish version of the FMPS

	Mean	SD	α	r_{1-5} Md (min-max)	α -item	ICC (95%IC)
FMPS total score	90.72	22.48	.93	.55 (.40-.72)	.92-.93	.89 (.80-.94)
- <i>Concern over mistakes</i>	20.09	7.72	.90	.69 (.50-.72)	.88-.90	.83 (.69-.91)
- <i>Parental expectations</i>	11.90	4.98	.85	.66 (.54-.75)	.77-.85	.92 (.85-.96)
- <i>Parental criticism</i>	7.43	3.66	.79	.47 (.48-.72)	.68-.80	.83 (.67-.91)
- <i>Organization</i>	20.15	5.78	.91	.77 (.62-.84)	.88-.92	.94 (.88-.97)
- <i>Personal standards</i>	20.22	6.14	.84	.58 (.43-.75)	.80-.84	.88 (.77-.94)
- <i>Doubt about actions</i>	11.01	3.67	.74	.54 (.50-.58)	.66-.71	.81 (.66-.90)

Note: FMPS, Frost Multidimensional Perfectionism Scale

Correlations between the Spanish Version of the FMPS and other perfectionism scales

Correlations between the Spanish version of the FMPS and other perfectionism measures are presented in table 4. The HMPS total score was highly correlated with the FMPS total score ($r = .75$). *Self-Oriented Perfectionism* was most strongly related to *Personal Standards* and *Concern over Mistakes*; it also showed a minor but consistent correlation with *Doubt about Actions*. *Other-Oriented Perfectionism* also appeared to be related to *Concern over Mistakes* and *Personal Standards*; however, the pattern was not as strong as *Self-Oriented Perfectionism*. *Socially Prescribed Perfectionism* was related to *Parental Expectations* and *Parental Criticism*. It was also correlated with *Concern over Mistakes* and, to a lesser extent, with *Doubt about Actions* and *Personal Standards*.

The *Perfectionism* subscale of the EDI-2 was also positively correlated with FMPS subscales and its total score. The strongest correlations coefficients were between the *Perfectionism* subscale of the EDI-2 and *Personal Standards* and *Parental Expectations*. Again, *Organization* obtained the weakest correlation coefficients.

The total score of the *Persistence* subscale of the TCI-R was moderately correlated with the FMPS total score. The strongest correlation was between its subscales and *Personal Standards*. On the other hand, *Eagerness of Effort* and *Work Hardened* did not showed high correlation coefficients with the FMPS subscales. *Ambition* showed a moderate relation with *Personal Standards* and

Table 3
Correlations among subscales of the Spanish version of the FMPS

	FMPS total score	Concern over mistakes	Parental expectations	Parental criticism	Organization	Personal standards	Doubt about actions
FMPS total score	-						
- <i>Concern over mistakes</i>	.83**	-					
- <i>Parental expectations</i>	.66**	.38**	-				
- <i>Parental criticism</i>	.62**	.48**	.70**	-			
- <i>Organization</i>	.48**	.21**	.11**	.04	-		
- <i>Personal standards</i>	.81**	.64**	.42**	.48**	.28**	-	
- <i>Doubt about actions</i>	.69**	.62**	.28**	.32**	.22**	.49**	-

** $p < .01$

Table 4
Correlations among the Spanish version of FMPS and other Perfectionism measures

	FMPS total score	Concern over mistakes	Parental expectations	Parental criticism	Organization	Personal standards	Doubt about actions
HMPS total score	.75**	.68**	.45**	.37**	.17*	.70**	.57**
- <i>Self oriented perfectionism</i>	.67**	.58**	.27**	.22**	.28**	.73**	.49**
- <i>Other oriented perfectionism</i>	.44**	.40**	.25**	.21**	.13	.41**	.30**
- <i>Socially prescribed perfectionism</i>	.60**	.55**	.59**	.49**	.04	.39**	.43**
EDI 2-Perfectionism	.69**	.54**	.60**	.42**	.16*	.63**	.46**
TCI R-PS total score	.48*	.29	.22**	.06	.36**	.60**	.29**
- <i>Eagerness of effort</i>	.32**	.19*	.14	.02	.36**	.35**	.13
- <i>Work hardened</i>	.25**	.08	.14	.01	.22**	.33**	.19*
- <i>Ambition</i>	.56**	.46**	.25**	.10	.23**	.66**	.34**
- <i>Perfectionism</i>	.40**	.15	.16*	.02	.40**	.56**	.26**

Note: HMPS, Hewitt Multidimensional Perfectionism Scale; EDI 2-Perfectionism, Perfectionism subscale of the Eating Disorders Inventory 2; TCI R-PS, Persistence's dimension of the Cloninger Temperament and Character Inventory Revised
** $p < .01$; * $p < .05$

Concern over Mistakes. *Perfectionism* was most strongly related to *Personal Standards*.

Discussion

Overall, our results suggested that the Spanish version of the FMPS is a well-adapted, reliable and valid six-factor scale to study perfectionism in women.

However, the study has some limitations. The sample was exclusively composed by female college students so the results cannot be generalized to different populations. Similarly to previous studies in which CFA was applied to the FMPS (Cox et al., 2002; Hawkins et al., 2006), we used conventional cut-off criteria for the fit indices instead of a more stringent cut-off (Hu & Bentler, 1999). We are aware that a more exigent cut-off would implicate a less optimistic interpretation of our results. However, the incorporation of more rigorous guidelines has not been widely accepted (Marsh, Hau & Wen, 2004).

Our results supported the six-factor structure proposed by Frost et al., (1990) for the Spanish version of the FMPS. Fit indices were better than the ones obtained for the four-factor model proposed by Stoeber et al., (1998) and the three-factor model proposed by Purdon et al., (1999). Some authors obtained better fit indices using the CFA, but only after refining the original scale deleting some of the items. Moreover, the structures obtained were divergent each other (Cox et al., 2002; Hawkins et al., 2006). The fact of having a Spanish version with the same items and same subscales as in the original FMPS will facilitate comparisons between the results obtained across different countries. Although our CFA results were not completely satisfactory, we preferred not to modify the six-factor model to improve the fit. Post hoc model-fitting procedures that successively modify models based on consideration of the residuals are likely to lead to capitalization on chance and the proliferation of meaningless models (Goffin, 2007; MacCallum, Roznowski, & Necowitz, 1992).

The levels of internal consistency for the total FMPS score and its subscales were from adequate ($\alpha = .74$) to excellent ($\alpha = .93$) and they were similar to the ones reported in the original version (Frost et al., 1990), supporting the reliability of the Spanish version of the FMPS.

The correlation coefficients between the six subscales of the Spanish version of the FMPS were similar to the ones obtained by Frost et al., (1990). *Organization* was not strongly associated with other subscales but it was moderately correlated with the FMPS total score. Other researchers also found this association and suggested that, while the *Organization* subscale had its own characteristic features, it also shared attributes with perfectionism (Hawkins et al., 2006; Khawaja & Armstrong, 2005). Thus, *Organization* was included in the total FMPS score. However, due to the multidimensional nature (theoretical

and empirical) of the FMPS, the use of subscales scores would be more adequate.

The excellent ICC obtained in the present study suggested that the FMPS total scores and its subscales do not fluctuate over time. It is congruent with the notion that this instrument assesses perfectionism as a personality trait. To our knowledge, this is the first study to assess the test-retest reliability of the FMPS.

As expected, the correlations between the FMPS and other perfectionism scales provide additional support for its construct validity. Consistent with previous findings, only correlations between some subscales were high and significant, reflecting the multidimensional nature of perfectionism as well as some differences in theoretical models. Consistent with previous results, the HMPS and the FMPS were partially correlated (Hewitt & Flett, 2004). For instance, *Concern over Mistakes* and *Personal Standards* were moderately correlated with *Self Oriented Perfectionism* and to a lesser extent with *Other Oriented Perfectionism*. The interpersonal quality of *Parental Expectations* and *Criticism* explains its association with *Socially Prescribed Perfectionism*. The *Perfectionism* subscale of the EDI-2 assesses intra and interpersonal components of perfectionism (Sherry, Hewitt, Besser, McGee, & Flett, 2004), so its association with *Parental Expectations*, *Concern over Mistakes* and *Personal Standards* is justified. The FMPS total score was also moderately associated with the *Persistence* subscale of the TCI-R, which reflects the perseverance of behavior despite frustration and fatigue. Also, perfectionistic people in general would continue their effort and behavior until their goals or standards are met. *Ambition* and *Perfectionism*, associated with *Personal Standards*, reflected the perfectionism related to the motivation for setting high standards toward one's self. It is in agreement with the results of Kobori et al., (2005), who found that *Persistence* was associated with facets of perfectionism orientated toward one's self.

Future research should evaluate the psychometric properties of the Spanish version of the FMPS in community and clinical samples and explore perfectionism as a risk factor of psychopathological states in women as well as its role in outcome and treatment response.

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Note

The Spanish version of the HMPS may be available from the corresponding author of this manuscript.

References

- Altstötter-Gleich, C., & Bergemann, N. (2006). Testgüte einer deutschsprachigen version der Mehrdimensionalen Perfektionismus Skala von Frost, Marten, Lahart und Rosenblate (MPS-F). *Diagnostica*, 52(3), 105-118.
- Arbuckle, J. (2006). *Amos 7.0 User's guide*. Spring House, PA: Amos Development Corporation.
- Balluerka, N., Gorostiaga, A., Alonso-Arbiol, I., & Haranburu, M. (2007). La adaptación de instrumentos de medida de unas culturas a otras: una perspectiva práctica. *Psicothema*, 19(1), 124-133.

- Bentler, P.M. (2004). *EQS 6 Structural Equation Program Manual*. Encino, CA: Multivariate Software.
- Browne, M.W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K.A. Bollen, & J.S. Long (Eds.), *Testing structural equation models*. Beverly Hills, CA: Sage.
- Burns, D.D. (1980a). *Feeling good: The new mood therapy*. New York: New American Library.
- Byrne, B.M. (2001). *Structural equation modeling with AMOS: Basic concepts, applications and programming*. Mahwah, NJ: Lawrence Erlbaum.
- Byrne, B.M. (1998). *Structural Equation Modelling*. Mahwah, NJ: Lawrence Erlbaum Associates Publishers.
- Chang, E.C., Ivezaj, V., Downey, C.A., Kashima, Y., & Morady, A.R. (2008). Complexities of measuring perfectionism: Three popular perfectionism measures and their relations with eating disturbances and health behaviors in a female college student sample. *Eating Behaviors*, 9(1), 102-110.
- Cheng, S.K., Chong, G.H., & Wong, C.W. (1999). Chinese frost multidimensional perfectionism scale: A validation and prediction of self-esteem and psychological distress. *Journal of Clinical Psychology*, 55(9), 1051-1061.
- Cloninger, C.R. (1999). *The temperament and character Inventory-Revised*. St Louis, MO: Washington University.
- Cox, B.J., Enns, M.W., & Clara, I.P. (2002). The multidimensional structure of perfectionism in clinically distressed and college student samples. *Psychological Assessment*, 14(3), 365-373.
- Di Bartolo, P.M., Li, C.Y., & Frost, R.O. (2008). How do the dimensions of perfectionism relate to mental health? *Cognitive Therapy and Research* 32, 401-417.
- Enns, M.W., & Cox, B.J. (2002). The nature and assessment of perfectionism: A critical analysis. In G.L. Flett, & P.L. Hewitt (Eds.), *Perfectionism: Theory, research and treatment* (pp. 33-62). Washington, DC: American Psychological Association.
- Frost, R.O., Marten, P., Lahart, C., & Roseblate, R. (1990). The dimensions of perfectionism. *Cognitive Therapy and Research*, 14, 449-468.
- Frost, R.O., Heimberg, R.G., Holt, C.S., & Mattia, J.I. (1993). A comparison of two measures of perfectionism. *Personality and Individual Differences*, 14(1), 119-126.
- Garner, D.M. (1991). *EDI2: Eating disorder inventory-2, professional manual*. Odessa, Florida: Psychological Assessment Resources.
- Garner, D.M. (1998). *Inventario de trastornos de la conducta alimentaria (EDI-2)*. Madrid: TEA.
- Goffin, R.D. (2007). Assessing the adequacy of structural equation models: Golden rules and editorial policies. *Personality and Individual Differences*, 42(5), 831-839.
- Gutiérrez-Zotes, J.A., Bayón, C., Montserrat, C., Valero, J., Labad, A., Cloninger, C.R., & Fernández-Aranda, F. (2004). Inventario del Temperamento y el Carácter-Revisado (TCI-R). Baremación y datos normativos en una muestra de población general. *Actas Españolas de Psiquiatría*, 32(1), 8-15.
- Harvey, B., Pallant, J., & Harvey, D. (2004). An evaluation of the factor structure of the Frost Multidimensional Perfectionism Scale. *Educational and Psychological Measurement*, 64(6), 1007-1018.
- Hawkins, C.C., Watt, H.M.G., & Sinclair, K.E. (2006). Psychometric properties of the frost Multidimensional Perfectionism Scale with Australian adolescent girls: Clarification of multidimensionality and perfectionist typology. *Educational and Psychological Measurement*, 66(6), 1001-1022.
- Hewitt, P.L., & Flett, G.L. (2004). *Multidimensional Perfectionism Scale (MPS): Technical manual*. Toronto: Multi-Health Systems.
- Hewitt, P.L., & Flett, G.L. (1991). Perfectionism in the self and social contexts: Conceptualization, assessment and association with psychopathology. *Journal of Personality and Social Psychology*, 60(3), 456-470.
- Hewitt, P.L., Flett, G.L., & Ediger, E. (1996). Perfectionism and depression: Longitudinal assessment of a specific vulnerability hypothesis. *Journal of Abnormal Psychology*, 105(2), 276-280.
- Hollender, M.H. (1978). Perfectionism, a neglected personality trait. *The Journal of Clinical Psychiatry*, 39(5), 384.
- Hoyle, R.H. (1995). The structural equation modeling approach: Basic concepts and fundamental issues. In R.H. Hoyle (Ed.), *Structural equation modeling: Concepts, issues and applications* (pp. 1-15). Thousand Oaks, CA: Sage Publications.
- Hoyle, R.H., & Panter, A.T. (1995). Writing about structural equation model. In R.H. Hoyle (Ed.), *Structural equation modeling: Concepts, issues and applications* (pp. 158-176). Thousand Oaks, CA: Sage Publications.
- Hu, L.T., & Bentler, P.M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6, 1-55.
- Khawaja, N.G., & Armstrong, K.A. (2005). Factor structure and psychometric properties of the frost Multidimensional Perfectionism Scale: Developing shorter versions using an Australian sample. *Australian Journal of Psychology*, 57(2), 129-138.
- Kobori, O., Yamagata, S., & Kijima, N. (2005). The relationship of temperament to multidimensional perfectionism trait. *Personality and Individual Differences*, 38(1), 203-211.
- Landis, J., & Koch, G. (1977). The measurement of observer agreement for categorical data. *Biometrics*, 33, 159-174.
- MacCallum, R.C., Roznowski, M., & Necowitz, L.B. (1992). Model modifications in covariance structure analysis: The problem of capitalization on chance. *Psychological Bulletin*, 111(3), 490-504.
- Macedo, A., Bos, S.C., Marques, M., Maia, B., Soares, M.J., Pereira, T., Gomes, A.A., Valente, J., & Azevedo, M.H. (2009). Perfectionism dimensions in pregnancy. A study in portuguese women. *Archives of Women's Mental Health*, 12(1), 43-52.
- Marsh, H.W., Hau, K., & Wen, Z. (2004). In search of golden rules: Comment on hypothesis testing approaches to setting cut-off values for fit indexes and dangers in over generalizing Hu and Bentler's findings. *Structural Equation Modelling*, 11, 320-341.
- Mazzeo, S.E., Slof-Op't Landt, M.C., Jones, I., Mitchell, K., Kendler, K.S., Neale, M.C., Aggen, S.H., & Bulik, C.M. (2006). Associations among postpartum depression, eating disorders and perfectionism in a population-based sample of adult women. *International Journal of Eating Disorders*, 39(3), 202-211.
- Nilsson, K., Sundbom, E., & Hägglöf, B. (2008). A longitudinal study of perfectionism in adolescent onset anorexia nervosa-restricting type. *European Eating Disorders Review*, 16(5), 386-394.
- Parker, W.D., & Adkins, K.K. (1995). A psychometric examination of the Multidimensional Perfectionism Scale. *Journal of Psychopathology and Behavioral Assessment*, 17(4), 323-334.
- Purdon, C., Antony, M.M., & Swinson, R.P. (1999). Psychometric properties of the frost Multidimensional Perfectionism Scale in a clinical anxiety disorders sample. *Journal of Clinical Psychology*, 55(10), 1271-1286.
- Rhéaume, J., Freeston, M.H., Dugas, M.J., Letarte, H., & Ladouceur, R. (1995). Perfectionism, responsibility and obsessive-compulsive symptoms. *Behaviour Research and Therapy*, 33(7), 785-794.
- Sassaroli, S., Lauro, L.J., Ruggiero, G.M., Mauri, M.C., Vinai, P., & Frost, R. (2008). Perfectionism in depression, obsessive-compulsive disorder and eating disorders. *Behaviour Research and Therapy*, 46(6), 757-765.
- Shafran, R., & Mansell, M. (2001). Perfectionism and psychopathology: A review of research and treatment. *Clinical Psychology Review*, 21(6), 879-906.
- Sherry, S.B., Hewitt, P.L., Besser, A., McGee, B.J., & Flett, G.L. (2004). Self-oriented and socially prescribed perfectionism in the Eating Disorder Inventory perfectionism subscale. *International Journal of Eating Disorders*, 35(1), 69-79.
- Stewart, A.I., & Ware, J.E. (1992). *Measuring functioning and well-being: The medical outcomes study approach*. Durham, NC: Duke University Press.
- Stöber, J. (1998). The Frost Multidimensional Perfectionism Scale revisited: More perfect with four (instead of six) dimensions. *Personality and Individual Differences*, 24(4), 481-491.
- Stumpf, H., & Parker, W.D. (2000). A hierarchical structural analysis of perfectionism and its relation to other personality characteristics. *Personality and Individual Differences*, 28(5), 837-852.
- Terry-Short, L., Glynn Owens, R., Slade, P. D., & Dewey, M. E. (1995). Positive and negative perfectionism. *Personality and Individual Differences*, 18(5), 663-668.