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Factorial validity of the Maslach Burnout Inventory (MBI-HSS) among Spanish professionals

Validação fatorial de Maslach Burnout Inventory (MBI-HSS) para profissionais espanhóis

Pedro R Gil-Monte

Departamento de Psicología Social. Facultad de Psicología. Universidad de Valencia. Valencia. España

Keywords
Factor analysis, statistical. Stress. Quality of life. Occupational diseases. General adaptation syndrome. Validity. Cross-cultural comparison.

Abstract

Objective
To assess the factorial validity and internal consistency of the Maslach Burnout Inventory (MBI-HSS).
Methods
In a sample consisting of 705 Spanish professionals from diverse occupational sectors (health, education, police and so one), seven plausible factorial models hypothesized were compared using LISREL 8.
Results
The four-factor oblique solution and the three-factor oblique solution showed the best and similar fit. Deletion of Item 12 and Item 16, taking into consideration the suggestions in the manual, improved the goodness of fit for both models. The four-factor oblique model suggests that, in addition to Emotional Exhaustion (EE) and Depersonalization (DP), Personal Accomplishment (PA) consists of two components labeled here *Self-Competence* (Items 4, 7, 17, and 21) and the *Existential Component* (Items 9, 12, 18, and 19). However, the alpha coefficient was relatively low for the Self-Competence component, suggesting that it is more suitable to estimate the syndrome as a three-dimensional construct. The Cronbach's alpha was satisfactory for PA (alpha =.71) and EE (alpha =.85), and moderate for DP (alpha =.58).
Conclusions
The results show that the MBI-HSS offers factorial validity and its scales present internal consistency to evaluate the quality of working life for Spanish professionals.

Descritores
Análise fatorial. Estresse. Qualidade de vida. Síndrome de adaptação geral. Validade. Comparação transcultural. Doenças ocupacionais.

Resumo

Objetivo
Verificar a validação fatorial e a consistência interna de Maslach Burnout Inventory (MBI-HSS).
Métodos
Em amostra de 705 profissionais espanhóis de diversos setores ocupacionais (saúde, educação, segurança pública, e outros), utilizando o LISREL 8, sete possíveis modelos fatoriais foram hipotetizados e comparados.
Resultados
A solução fatorial oblíqua de três fatores, e a solução fatorial oblíqua de quatro fatores, apresentaram a melhor solução e ajustes adequados. A eliminação dos itens

Correspondence to:
Pedro R. Gil-Monte
Departamento de Psicología Social
Facultad de Psicología (Universidad de Valencia)
Av. Blasco Ibáñez, 21
46010 Valencia, Spain
E-mail: Pedro.Gil-Monte@uv.es

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12 e 16, seguindo as instruções do manual, melhorou sensivelmente o ajuste dos modelos. O modelo oblíquo de quatro fatores sugere que, junto com a exaustão emocional e a despersonalização, a dimensão realização pessoal no trabalho integra dois componentes denominados: autocompetência *(itens 4, 7, 17, e 21) e* componente existencial *(itens 9, 12, 18, e 19). O valor de alfa de Cronbach obtido para o componente autocompetência, relativamente baixo, sugere que é mais adequado avaliar a síndrome como um construto tridimensional. O alfa de Cronbach foi adequado para realização pessoal no trabalho (alfa =0,71) e para exaustão emocional (alfa =0,85), e alcançou um valor moderado para despersonalização (alfa =0,58).*

Conclusões

Os resultados permitem concluir que o MBI-HSS apresenta suficiente validação fatorial e a consistência interna das suas escalas são aceitáveis para avaliar a qualidade de vida de trabalhadores.

INTRODUCTION

There are many issues currently stimulating interest in cross-cultural studies, including the unification of Europe, which has resulted in groups of workers moving across cultural borders, the changing demographics of the United States' work force e.g., there is an important increase in the number of Hispanic workers, the growth of international markets, and the ascendancy of the multinational organization. Increasing cooperation across cultural boundaries makes it more and more important to understand culturally based differences with respect to constructs that evaluate the quality of working life.

Since the term "burnout" began to be used in the mid 1970's (Freudenberger,[6] 1974) to refer to the process of deterioration in the care and professional attention given to users of human service organizations (public service, volunteer, medical, human social service, educational organizations), a variety of instruments have been developed to measure this phenomenon (Gil-Monte & Peiró,[8] 1997). A review of the literature makes it possible to conclude that among these measurement instruments the Maslach Burnout Inventory (MBI)[16] has been employed with the greatest frequency to measure the burnout syndrome, regardless of the occupational characteristics of the sample or the source of the burnout (Golembiewski et al,[12] 1996; Maslach et al,[17] 2001). Today the syndrome is defined, according to this instrument, as a syndrome of emotional exhaustion, depersonalization, and low personal accomplishment. Because of this, the concept of burnout used in this study is not the result of theoretical analysis of the phenomenon. On the contrary, the phenomenon has been defined from one of its multiple measurement instruments: the MBI.

The MBI has been widely accepted in all countries of Latin America, the European Union (EU), and in the United States (Golembiewski et al,[12] 1996; Maslach et al,[17] 2001). This is an advantage because it makes it possible to compare results and to develop prevention and treatment strategies for this syndrome in companies and organizations of these countries, and improve the quality of working life. For these reasons, it is important to develop adaptations of this questionnaire that are reliable and valid in different countries and cultures.

In relation to studies that have examined the MBI 22-item versions (Maslach et al,[16] 1996), most exploratory factor analysis studies have shown a three-factor structure similar to that of the manual, representing Personal Accomplishment (PA), Emotional Exhaustion (EE), and Depersonalization (D), either through the measure of these constructs as relatively independent i.e., orthogonal rotation, or modestly correlated i.e., oblique rotation. Also, some studies using confirmatory factor analyses have recommended assuming a three-factor structure (Boles et al,[3] 2000). Although alternative models of one- and two-factors were tested, the fit of the three-factor oblique model appeared to be superior.

Nevertheless, other studies have concluded that the MBI shows some weakness related to factorial validity. Some of these studies have recommended assuming a factorial solution of two factors (Kalliath et al,[14] 2000). In this solution, the first factor is defined by the Emotional Exhaustion and Depersonalization items (called "the Core of Burnout"), and the second factor is defined by the Personal Accomplishment items. On the other hand, in other studies four factors appear, and in some even six factors are found. In the latter results, the factorial solutions obtained are theoretically difficult to interpret or lack this interpretation.

Furthermore, several studies have consistently found cross-loadings for Item 12 and Item 16 (Byrne,[4] 1993). Byrne[5] (1992), using confirmatory factor analyses, concluded that the measures of goodness

of fit for the model improve by deleting Items 2, 12, 16, and 20. Item 2 showed multicollinearity with Item 1; Item 12, a Personal Accomplishment item, was found loading negatively on Emotional Exhaustion; and Items 16 and 20, estimating Emotional Exhaustion, were found loading on Depersonalization. On the other hand, Item 6, an Emotional Exhaustion item, has also been found loading on Depersonalization. Maslach et al[16] (1996) suggest omitting Item 12 and Item 16 from causal modeling analyses.

Regarding results on factorial validity of the MBI obtained in Spain, Gil-Monte & Peiró[9] (1999) have concluded that the MBI appears to have factorial validity and internal consistency for Spanish professionals. In this study, exploratory factor analysis offered four factors with eigenvalues exceeding unity. Items of Emotional Exhaustion loaded on Factor I, items of Depersonalization on Factor II, and items of Personal Accomplishment on both Factor III (items 4, 7, 17, and 21) and Factor IV (items 9, 12, 18, and 19). The analysis of the items from Factor III led to the conclusion that they allude to the evaluation of a perceived self-competence component (e.g., item 4, *I can easily understand how my recipients feel about things*, item 7, *I deal very effectively with the problems of my recipients*). The items that loaded on Factor IV do not allude to this component, but they do seem to reflect some aspect having to do with the importance one's work has for making the individual feel personally fulfilled in life and satisfied with the contribution he/she makes to others through his/her work (e.g., item 19, *I have accomplished many worthwhile things in this job*). A second factor analysis was carried out with a specification to extract three factors. This factor analysis showed a factor structure consistent with the original. However, Items 6 and 16 loaded on the Emotional Exhaustion (Factor I) and Depersonalization (Factor II) dimensions, and Item 12 on the Emotional Exhaustion (Factor I) and Personal Accomplishment (Factor III and Factor IV) dimensions. Nevertheless, other Spanish studies have shown six factors and seven factors.

On the other hand, poor internal consistency coefficients for the subscale of Depersonalization are sometimes found. This shortcoming is a problem that should be taken into account in the burnout research. Values of the Cronbach's alpha coefficient are sometimes between alpha =.42 and alpha =.64. Some results on internal consistency are similar in Spain.

The purposes of this study are two-fold: (a) to test the factorial validity of the Spanish version of the MBI-HSS (Maslach et al,[16] 1996), and (b) to evaluate the internal consistency of its subscales. On the basis of previous results obtained with another sample (Gil-Monte & Peiró,[9] 1999), it is hypothesized that the four-factor structure (as mentioned above) will prove to fit the data best, and this fit will be similar to the three-factor structure as originally intended by Maslach and Jackson.

METHODS

The study sample consisted of 705 Spanish professionals from diverse occupational sectors: 15.9% education professionals (teachers, employees in occupational institutions for mentally retarded people, and others), 43.8% nursing professionals, 20.9% police officers, and 19.4% other service employees (hotel and bank employees, volunteers, and others) (see Table 1).

Sample groups were collected in a non-randomized way. The percentages of responses varied, ranging between 26% and 76%. Keeping in mind that hypothesized covariance structure models represent only approximations of reality and are not expected to fit phenomena exactly, it is common for some re-specification of the measurement model to be required (Anderson & Gerbing,[1] 1988). To avoid a chance capitalization, the study sample was randomly divided into two sub-samples, using the option of the SPSS 10.0 statistical program. One of the samples was used to evaluate the models (calibration sample, n_1=350) and the other to evaluate the re-specified models (validation sample, n_2=355).

The data were obtained with a Spanish version of the Maslach Burnout Inventory-Human Services Survey (MBI-HSS) (Maslach et al,[16] 1996). The question-

Table 1 - Personal and job demographics of subjects in study sample. (N=705)

Gender	N (%)	Occupational sector	N (%)
Male	288 (41.4)	Education	112 (15.9)
Female	408 (58.6)	Nursing	309 (43.8)
Marital status		Police	147 (20.9)
Married	367 (52.1)	Others	137 (19.4)
Not married	332 (47.1)		
Working pattern			
Tenure	401 (56.9)		
Temporary	214 (30.3)		
	Mean	Range	
Age (years)	32.5	17-67	

Rev Saúde Pública 2005;39(1):1-8
www.fsp.usp.br/rsp

Table 2 - Fit indices of all models.

22-items models (n^1=350)	χ^2	Df	χ^2/df	GFI	AGFI	RMSEA	CFI	NNFI	PNFI
Null	3405.46*	231	–	.53	.49	.20	–	–	–
One-factor (M_1)	1343.23*	209	6.43	.81	.78	.12	.64	.61	.55
Two-factor orthogonal (M_2) (EE+DP *vs* PA)	1853.67*	209	8.87	.74	.69	.15	.48	.43	.41
Two-factor oblique (M_3)	1304.42*	208	6.27	.82	.78	.12	.65	.62	.56
Three-factor orthogonal (M_4)	1935.14*	209	9.26	.73	.68	.15	.46	.40	.39
Three-factor oblique (M_5)	1222.37*	206	5.93	.83	.79	.12	.68	.64	.57
Four-factor orthogonal (M_6) (Gil-Monte & Peiró,[9] 1999)	2032.84*	209	9.73	.72	.66	.16	.43	.36	.36
Four-factor oblique (M_7)	1218.26*	203	6.00	.83	.79	.12	.68	.64	.56
20-items models (n_2=355)									
Null	5613.88*	190	–	.52	.47	.22	–	–	–
Three-factor oblique ($M_{5,\ Items\ 12\ \&\ 16\ deleted}$)	556.94*	167	3.33	.92	.90	.08	.87	.86	.73
Four-factor oblique ($M_{7,\ Items\ 12\ \&\ 16\ deleted}$)	543.35*	164	3.31	.92	.90	.08	.88	.86	.72

GFI: Goodness Fit Index; AGFI: Adjusted Goodness Fit Index; RMSEA: Root Mean Square Error of Approximation; CFI: Comparative Fit Index; NNFI: Non-Normed Fit Index; PNFI: Parsimony Normed Fit Index. PA: Personal Accomplishment; EE: Emotional Exhaustion; DP: Depersonalization.
*p<.001

naire consists of twenty-two items that provide a measure of perceived burnout. The response format of frequency was used. Items can be answered on a seven-point Likert-scale, ranging from 0 (Never) to 6 (Everyday). According to Maslach et al,[16] the instrument is made up of three subscales: Personal Accomplishment (PA) (8 items), Emotional Exhaustion (EE) (9 items), and Depersonalization (DP) (5 items). The items on the MBI were translated into Spanish. From this translation, a back-translation was carried out by native English speaking teachers, and agreement was reached with them on the meanings of the items. A version of the MBI was elaborated with two pilot studies which were carried out. The results on the factorial validity and internal consistency of the scales in these studies were acceptable (Gil-Monte & Peiró,[9] 1999).

Taking literature review presented as reference, six factor-analytical models were examined using LISREL 8 (Jöreskog & Sörbom,[13] 1996): (a) the one-factor model (M_1), which assumes that all MBI items load on a general composite burnout factor; (b) the two-factor orthogonal model (M_2), in which the Emotional Exhaustion and Depersonalization items cluster into one factor and the Personal Accomplishment items constitute the second factor; (c) the two-factor oblique model (M_3), in which the two factors of M_2 are assumed to be correlated; (d) the original three-factor orthogonal model (M_4); (e) the three-factor oblique model (M_5), in which the three factors of M_3 are assumed to be correlated; (f) the four-factor orthogonal model (M_6) obtained in Gil-Monte & Peiró[9] (1999) and explained above; and (g) the four-factor oblique model (M_7), in which the four factors of M_6 are assumed to be correlated.

The polychoric correlations matrix and the asymptotic covariance matrix were used as input matrices for standardized data, and the WLS (weighted least squares) estimation method was employed.

RESULTS

Using LISREL 8, seven plausible factorial models hypothesized were evaluated by structural equation analysis to test the factorial validity of the MBI. As Table 2 shows, the measures of goodness of fit for the oblique factorial solutions (M_3, M_5 and M_7) were superior to those obtained for the respective orthogonal factorial solutions (M_2, M_4, and M_6). Furthermore, in all pairs of comparisons the difference in χ^2 P was significant, indicating that with this index oblique solutions fitted the model significantly better than the respective orthogonal solutions. Values of difference in χ^2 were: (a) two-factor models (M_2 *vs* M_3), $\Delta\chi^2_{(1)}$=549.25 (p<.001); three-factor models (M_4 *vs* M_5), $\Delta\chi^2_{(3)}$=712.77 (p<.0001); and four-factor models (M_6 *vs* M_7), $\Delta\chi^2_{(6)}$=812.58 (p<.001).

The four-factor oblique solution (M_7) showed values of fit indices similar to those obtained for the three-factor oblique solution (M_5), although neither M_5 nor M_7 offered a perfect fit (χ^2/df was higher than 2, AGFI, CFI, and NNFI were lower than .90, and RMSEA was higher than .08). Values of fit indices of M_5 were better than those obtained for the two-factor oblique model (M_3), and the difference in χ^2 (M_3 *vs* M_5: $\Delta\chi^2_{(2)}$=82.05, p<.001) was significant. This indicates a substantial improvement in the three-factor oblique solution (M_5) fit with regard to the two-factor oblique solution (M_3). These results are in line with the authors' hypothesis: values of fit indices found for M_7 (Figure 1) were similar to fit values obtained for M_5 (Figure 2); however, these

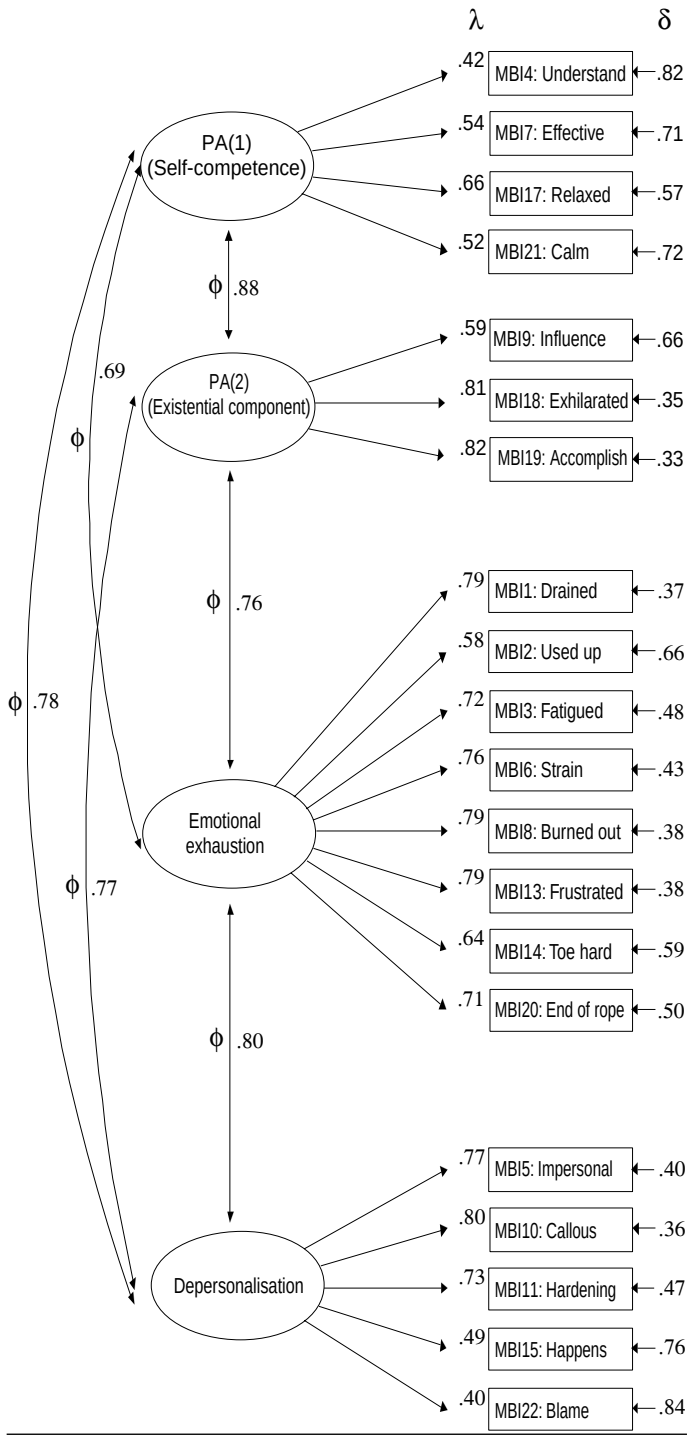

Figure 1 - Factor loading: four-factor oblique model (M_7) (n_2=355).

models were oblique solutions instead of orthogonal solutions.

The failure to confirm the hypothesized 22-item model (M_5) is consistent with the results of several studies cited above (Boles et al,[3] 2000). When the initial model fails to fit the data well, the focus shifts from model testing to model development. In an effort to further improve the instrument, M_5 and M_7 (because both models showed similar values of fit indices), with Item 12 and Item 16 deleted, were postulated and tested. In order to eliminate these items, the results obtained on the Modification Indexes (MI) were considered, which makes it possible to apply the recommendations offered by Maslach et al[16] in the questionnaire manual. Additionally, the values of standardized residuals across the models for Items 12 and 16 were considered (i.e., Item 12 above .30 and Item 16 above .50). Although the values of the fit indices obtained for the re-specified models with 20 items were similar to those obtained with the respective 22-item models, the χ^2 difference proved significant in both cases (M_5 *vs* $M_{5,\ \text{Items 12 \& 16 deleted}}$: $\Delta\chi^2_{(39)}$=433.92, p<.001, and M_7 *vs* $M_{7,\ \text{Items 12 \& 16 deleted}}$: $\Delta\chi^2_{(39)}$=455.48, p<.001). This result indicates that through this index the 20-item models fit the data significantly better than their respective 22-item models. Taking this result into consideration, both 20-item models were evaluated in a second independent sample (validation sample, n_2=355).

The measures of goodness of fit for the 20-item models evaluated in this second independent sample (Table 2) indicate that both models show a quite satisfactory fit for the data, with GFI values of .92 and AGFI values of .90, and the fit was acceptable with other indices (e.g., RMSEA, values between .05 and .08 have been deemed as acceptable levels of fit). These values are similar to those obtained with the original version of the scale and even superior to those obtained in other studies (Boles et al,[3] 2000; Byrne,[4] 1993).

The second purpose of this study was to evaluate internal consistency and validity of the MBI subscales. As can be seen in Table 3, Cronbach's alpha values for both the Personal Accomplishment (alpha=.71) and Emotional Exhaustion (alpha=.85) subscales were satisfactory, but the value was lower for Depersonalization (alpha=.58).

Taking into consideration the four-factor oblique model (M_7), the value of Cronbach's alpha for the Personal Accomplishment component Self-Competence (PA1) (alpha=.49) was not satisfactory. However, for the Existential Component (PA2) the Cronbach's alpha (alpha=.71) was satisfactory. Means, standard deviations, and interscale correlations of the MBI are found in Table 3. These values showed a

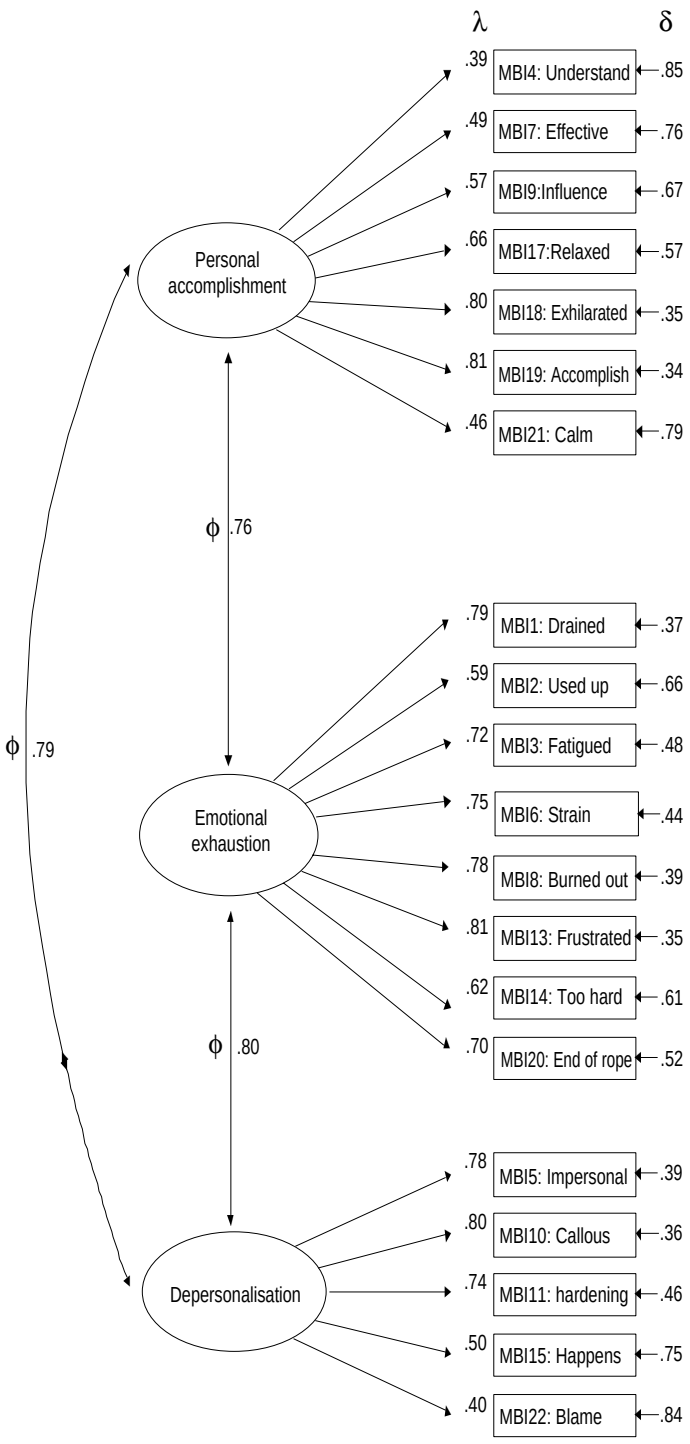

Figure 2 - Factor loading: three-factor oblique model (M_5) (n_2=355).

pattern similar to those values offered in the US manual (Maslach et al,[16] 1996). However, the mean score of Personal Accomplishment (t_{11770}=4.30, p<.001) was significantly higher for the Spanish sample than for the US normative sample, and the mean score of Depersonalization (t_{11770}=-9.97, p<.001) was significantly lower. The difference was not significant for Emotional Exhaustion (t_{11770}=-.74).

DISCUSSION

The results of the study suggest that the four-factor oblique model (M_7) and the three-factor oblique model (M_5) show the best fit to data. Values are similar in every index for these two models. The best fit to data to the four-factor and the three-factor models has been obtained when both Item 12 and Item 16 were eliminated. Then the fit to data for the re-specified models has been attained by GFI and AGFI indexes. However, the moderated Cronbach's alpha values attained for the Self-Competence factor of the Personal Accomplishment subscale (PA1), and the high value of the correlation between the two factors (r=.88), suggest considering the two PA factors (PA1 and PA2) as two aspects of one dimension. Therefore, it is more convenient to maintain the three dimensions established in the manual to assess the burnout with the MBI.

In addition to these results on the construct of burnout, the study offers some suggestions for elaborating a theory on burnout that would make it possible to better interpret the relationship between its dimensions and between these dimensions and some of their significant antecedents and consequents. Several studies (Ashforth & Lee,[2] 1997) have demanded theoretical soundness in this field of research. In fact, one of the main problems for the advancement of research in burnout is that it is needed from both an academic and practical perspective.

Personal Accomplishment presents considerable obstacles to being integrated and interpreted in a coherent way with the two other dimensions of the MBI (Gil-Monte et al,[10] 1998). Several studies have suggested that it is not clear whether feelings of diminished personal accomplishment are a component of burnout, whether they should be considered as an antecedent or as an outcome. These considerations can be raised because of the lack of a theoretical basis linking Personal Accomplishment with the other two dimensions of the MBI.

Results obtained in the present study can signify a theoretical contribution in this way, because they suggest that Personal Accomplishment is made up of two components. PA1, labeled here *Self-Competence*, includes Items 4, 7, 17, and 21. These items represent an aspect of self-appraisal of performance and suc-

Table 3 - Descriptive Statistics, Reliability Estimates, and Intercorrelations of MBI Subscales. (N=705)

MBI Scales	M	SD	Alpha	PA	EE	DP
PA	35.77 (34.58)*	7.39 (7.11)	.71			
EE	20.68 (20.99)	10.81 (10.75)	.85	-.33** (-.22**)		
DP	6.46 (8.73)	5.35 (5.89)	.58	-.34** (-.26**)	.40** (.52**)	
PA (Self-competence)	17.99	4.15	.49			
PA (Existential component)	17.78	4.66	.71			

*Numbers in parenthesis correspond to USA manual
**p#.001

cess at work (Item 17, *"I can easily create a relaxed atmosphere with my recipients"*), and they help to understand how the etiology and the development process of burnout can be explained according to principles of Bandura's self-efficacy theory. This component can be viewed as the core of Personal Accomplishment. We agree with Lee & Ashforth[15] (1990) when they state that the perception of self-efficacy or self-competence is the core of the Personal Accomplishment dimension. On the other hand, PA2, labeled here *Existential Component*, comprises Items 9, 12, 18, and 19. These items represent the existential significance that professionals derive from their work (Item 9, *"I feel I'm positively influencing other people's lives through my work"*), in line with Pines' ideas (Pines,[18] 1993). Similar factorial results have been obtained by Powers & Gose[19] (1986), and by Gold[11] (1984); therefore, cross-cultural validation for these two components of Personal Accomplishment has been found.

The study results might offer a theoretical reference to integrate the perspectives on burnout of the Maslach and Jackson and Pines models. Moreover, they should be taken into consideration in the new versions of the MBI in order to assure the correspondence between the subscales.

Another relevant result obtained from the MBI Spanish adaptation is the substantial improvement in model fit with the deletion of Item 12 measuring Personal Accomplishment and Item 16 measuring Emotional Exhaustion, following the recommendations in the manual of the questionnaire's original version (Maslach et al,[16] 1996). Nevertheless, these results should not be seen as a shortcoming of the study version. The elimination of Items 12 and 16 does not invalidate the psychometric soundness of the Spanish version due to the fact that this weakness is intrinsic to the instrument. Both items were also problematic in the original version of the questionnaire (Boles et al,[3] 2000; Byrne,[5] 1992; Byrne,[4] 1993; Maslach et al,[16] 1996). In those studies, deletion of those items was recommended as a way to improve the goodness of fit for the model.

Concerning the second purpose of this study, it must be noted that, while the Cronbach's alpha coefficient was satisfactory for Personal Accomplishment and Emotional Exhaustion, conferring internal consistency to these subscales, it was moderate for Depersonalization. The occasional low internal consistencies for Depersonalization can be due to the small number of items integrated into this subscale, but it may also reflect conceptual problems, because there are some indications that this subscale should be treated as a multidimensional construct. On the basis of the previous psychometric and theoretical accounts, it is considered that the moderate Cronbach's alpha coefficient obtained for this subscale may be due to the idiosyncrasy of the subscale rather than peculiarities of the translation. Thus, it seems appropriate to maintain five items for Depersonalization, although this number would have to be increased to obtain a more consistent Spanish subscale and to include the different aspects of depersonalization (distancing, hostility, lack of concern, and rejection) (Garden,[7] 1987).

The results of this study lead to the conclusion that, as a whole, the inventory presents an adequate factorial validity and its scales present sufficient internal consistency for Spanish professionals. Although initially four factors were hypothesized, the results of the present study suggest that it is more suitable to estimate the syndrome by the MBI-HSS as a three-dimensional construct.

In addition, some practical implications can be derived, because greater knowledge about the symptoms of the burnout should facilitate the prevention or early recognition and treatment of burnout. In some countries this diagnosis is especially important because burnout appears in the official listing of conditions related to work and recognized in the legislation on job-related accidents (e.g., in Brazil, Ministério da Fazenda (Ministry of Treasure), Secretaria da Receita Federal (Department of Internal Revenue), Decree nº 3,048, May 6, 1999, Annex II, List B). On the other hand, this study makes a contribution to the cross-cultural validation inventory within the Euro-

pean Union. However, cross-cultural construct equivalence or factorial invariance must be tested in future studies.

At present this contribution is relevant to considering the importance of having cross-cultural instruments to assess psychosocial well-being and the quality of working life. With the increasing focus on international management, it is important for academics and practitioners to understand the value of organizations having a common management policy in different cultures and common instruments for assessing multicultural labor forces. Workers from different cultures employed in the same organization are becoming more and more frequent due to demographic changes.

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