Psicothema

Validation of the Maslach Burnout Inventory-Student Survey in Spanish adolescents

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Abstract

Background: There are a large number of studies in the literature on burnout and its negative consequences for health and psychological wellbeing. Use of the burnout index in the academic context has increased to the point of identifying even the adolescent population. Nevertheless, at the present time there is no validated instrument for evaluating this syndrome in Spanish high school students. In view of this, our study attempted to evaluate the factor structure and reliability of the Spanish version of the Maslach Burnout Inventory-Student Survey (MBI-SS) in a sample of high school adolescents. **Method:** The sample included 1,209 students in the autonomous region of Andalusia (Spain), of whom 47.1% were boys and 52.9% girls, with a mean age of M=15.07, SD=1.174). **Results:** The exploratory and confirmatory factor analyses supported a model with 12 items showing good fit, distributed across three factors: emotional exhaustion, cynicism and academic efficacy. **Conclusions:** These results demonstrate that the proposed instrument has an excellent factor structure and internal consistency, and is useful for evaluating academic burnout in the adolescent Spanish high school population.

Keywords: Adolescents, burnout, secondary education, Maslach Burnout Inventory-Student Survey, psychometric properties.

Resumen

Validación del Maslach Burnout Inventory-Student Survey en adolescentes españoles. **Antecedentes:** la literatura científica recoge una gran cantidad de estudios sobre el fenómeno del burnout y sus consecuencias negativas para la salud y el bienestar psicológico. El índice de burnout en el contexto académico ha aumentado, llegando incluso a identificarse en población adolescente. No obstante, actualmente no existe un instrumento validado para evaluar este síndrome en estudiantes españoles de educación secundaria. En base a lo anterior, el presente estudio pretende evaluar la estructura factorial y la fiabilidad de la versión española del Maslach Burnout Inventory-Student Survey (MBI-SS) en una muestra de adolescentes de educación secundaria. **Método:** la muestra ascendió un total de 1.209 estudiantes de la comunidad autónoma de Andalucía (España) (47,1% hombres, 52,9% mujeres; edad M = 15.07 años, DT = 1.174). **Resultados:** el análisis factorial exploratorio y confirmatorio apoyó el modelo con 12 ítems que presentó mejores niveles de ajuste, distribuidos en tres factores: agotamiento emocional, cinismo y eficacia académica. **Conclusiones:** estos resultados reflejan que el instrumento propuesto posee una óptima estructura factorial y consistencia interna, siendo útil para evaluar el burnout académico en población española adolescente de educación secundaria.

Palabras clave: adolescentes, burnout, educación secundaria, Maslach Burnout Inventory-Student Survey, propiedades psicométricas.

The scientific literature includes many studies on the phenomenon of burnout and its negative consequences for health and psychological wellbeing. The first studies into this syndrome were in workplace contexts, associated with caring professions, and were then generalised to other work-related environments. New lines of research have extended the analysis to an educational and training context, particularly in the university environment, and more recently to the context of secondary-school education (Faye-Dumanget et al., 2017; Hederich-Martínez & Caballero-Domínguez, 2016; Ko, 2015; Lee et al., 2010).

In this latter context the prevalence of burnout is around 15% (Salmela-Aro et al., 2009; Zhang et al., 2013). This may be a concern if not addressed as it could result in significant health problems in the young population, harming their subsequent entry and performance in the workplace (López-García et al., 2018; Maganto et al., 2019). In fact, in the longitudinal study by Salmela-Aro et al. (2009) with a large sample of adolescents aged between 15 and 19, academic burnout predicted the appearance of depressive symptoms in a way that was stable over time, something that may require a clinical approach (Ho et al., 2018; Olivares-Olivares et al., 2019).

Initially, burnout syndrome was understood as a state of chronic stress, experienced by healthcare workers in relation to patient care, which was characterised by suffering a state of exhaustion, emotional distancing, and loss of confidence in their ability to effectively perform the job (Maslach, 1976). In this context, Maslach and Jackson (1981) created one of the most widely-used

tests for measuring work-related burnout, called the Maslach Burnout Inventory (MBI), in which burnout was operationalised from three principle components: exhaustion, depersonalisation, and personal accomplishment. From this initial model of burnout, the original 22-item test was adapted, and reduced to 16 items, to be applicable to more professions, and not limited to the context of care. This led to the Maslach Burnout Inventory General Survey (MBI-GS), created by Schaufeli et al. (1996). This instrument also evaluated the three components of burnout: exhaustion (with emphasis on physical and emotional fatigue, coming not only from the care relationship), professional effectiveness (incorporating the role of expectations of success in professional achievements), and cynicism (understood as the indifference or distant attitude towards work in general, not necessarily linked to other people). The recognition and acceptance of the MBI for the evaluation of burnout at work has been widely demonstrated, with its validity and reliability being tested in various studies and meta-analyses with samples in various countries and cultures (Aguayo et al., 2011; Kim & Ji, 2009; Olivares et al., 2014).

Despite its origins, the study of burnout has extended to different areas, leading to the creation of other instruments allowing it to be detected in other contexts such as education (Salmela-Aro et al., 2008; Schaufeli et al., 2002) and sport (Arce et al., 2010; Raedeke & Smith, 2001). In the educational context, Schaufeli et al. (2002) designed the Maslach Burnout Inventory-Student Survey (MBI-SS) aimed especially at the analysis of burnout in university students. For these authors, academic burnout referred to feeling exhausted due to the demands of study, exhibiting an indifferent, distant attitude to study, and feeling incompetent as a student. The MBI-SS measures the same dimensions as the MBI-GS, from 15 items adapted to the academic context. Most validation studies of this instrument with university students, in Germany (Gumz et al., 2013), Brazil (Campos et al., 2011; Carlotto & Câmara, 2006), Chile (Pérez et al., 2012), Colombia (Hederich-Martínez & Caballero-Domínguez, 2016), France (Faye-Dumanget et al., 2017), Hungary (Hazag et al., 2010), and Portugal (Campos & Maroco, 2012; Maroco & Tecedeiro, 2009), support the three dimensional structure of the questionnaire, with appropriate internal consistency of the different subscales, offering clear advantages for its application. However, some studies have proposed a two-dimensional conception of academic burnout syndrome, with the essential dimensions being exhaustion and cynicism (Mostert et al., 2007; Rosales-Ricardo & Rosales-Paneque, 2014).

From its conception, burnout was presumed to be not only associated with the characteristics of care work, but also linked to other professional activities. Nowadays, there is clear evidence of it being detected in other non-work environments, with confirmation that this phenomenon appears associated with contexts in which there are high demands, and a lack of personal or organisational resources to deal with them. As proposed in the Demand-Control model from Karesk and Theorell (1990), which explains work-related stress in terms of the balance between the psychological demands of work and the level of control the worker has over them, and in the model of Effort-Reward Imbalance from Siegrist (2001), which focuses on the imbalance between the effort made by workers and the rewards they receive for it. Both models can be applied to the academic environment, as both contexts have similarities that can trigger burnout (Garcés de los Fayos, 1995; Salanova & Llorens, 2008). More recently, the phenomenon of academic burnout has been studied in the context of secondary-school in adolescents, understood as a continuous phenomenon which goes from school-related stress to greater exhaustion (Salmela-Aro et al., 2008; Salmela-Aro et al., 2009), with the role and development of emotional intelligence having to be considered in this regard (Birks et al., 2009; Foster et al., 2018; Castellano et al., 2019; Gázquez et al., 2019; Ko, 2015; Molero et al., 2019).

The changing characteristics of the modern world and the constant technological advances require education to focus on the development of competences that equip the student for working in teams, critical analysis of information, individual initiative and decision-making, effective, assertive communication, and creativity and innovation. All of these skills are related to acquiring flexibility and the ability to adapt to new situations (Gan et al., 2007).

However, when the education system ignores the traits of adolescence, and when it does not provide the student with the education necessary for the development of these individual competencies, by expanding academically due to new social demands, students can be overloaded with requirements, without having been given the personal resources they need to deal with them (Galleguillos-Herrera & Olmedo-Moreno, 2019; Lee et al., 2013; Martos et al., 2018). This imbalance between demands and resources can generate relationships based on stress, which when chronic can trigger burnout syndrome. In addition this phenomenon feeds back, causing poor academic performance, school failure, and maladaptive behaviour (Lee et al., 2010; Salanova et al., 2005). Lee et al. (2010) identified four profiles of burnout in Korean students (1) Exhausted (high scores in emotional exhaustion and cynicism, and low scores in academic effectiveness); (2) Stopped-doing (low scores in emotional exhaustion, cynicism, and academic effectiveness); (3) Perseverant (high scores in emotional exhaustion, cynicism, and academic effectiveness); and (4) Well functioning (not experiencing burnout). The latter group had the highest scores in the mean academic grades and self esteem. Nonetheless, burnout has been observed in high-performing students as well (Tuominen-Soini et al., 2008), maybe due to a perception of frustration in relation to job-related expectations, despite their efforts, and in addition, due to the systematisation and dehumanisation of modern education, which contributes to a negative classroom climate.

Considering the importance of detecting academic burnout in order to prevent it and deal with it in the educational context of secondary school, this study aims to validate the Maslach Burnout Inventory-Student Survey (MBI-SS; Schaufeli et al., 2002) in a sample of Spanish secondary-school students.

Method

Participants

The sample was composed of 1209 secondary-school students, with a mean age of 15.07 years (*SD* = 1.17), ranging from 14 to 18 years old. Almost half of the sample were boys (47.1%; *n*=529), and a little over half were girls (52.9%; *n*=640), the mean ages were 15.05 (*SD*= 1.43) and 15.10 (*SD*= .87) respectively. Almost half of the parents had secondary education qualifications (49% of fathers, and 48.3% of mothers), around a third had university qualifications (28.8% of fathers, 32.4% of mothers), while the remainder had no qualifications, or only primary education (22.2% of fathers, 19.4% of mothers). Over two-thirds of parents or guardians (69.3%) both

worked, in 20.3% of cases, only the father worked, in 8.2% of cases, only the mother worked, and a very small number were either unemployed or retired.

Instruments

The MBI-SS measures academic burnout. The test was created by Schaufeli et al. (2002). It is a questionnaire with 15 items which are evaluated using a Likert-type scale from 0 (never) to 6 (every day). The items are distributed in three subscales: Emotional Exhaustion (EE) (5 items, for example "*I feel emotionally exhausted by my studies*"), Cynicism (C) (4 items, for example "*I have become less interested in my studies since I started secondary school*"), and Academic Effectiveness (AE) (6 items, for example "*I can effectively solve the problems that come up in my studies*"). The scores obtained in the questionnaire indicate the presence of academic burnout when they are high in the exhaustion and cynicism subscales and low in the academic effectiveness subscale. Exhaustion means suffering from a stat of severe fatigue produces by issues generally related to study. Cynicism is an indifferent, or distant attitude towards the student's schoolwork or academic tasks. Effectiveness refers to both social and non-social aspects of working in the academic environment. The validity and reliability indices from the three subscales were good in samples of university students in Spain, Portugal, and Holland (Schaufeli et al., 2002). In their Spanish sample, those authors obtained internal reliability of α= 0.74 in the exhaustion subscale, α = 0.76 in the cynicism subscale, and α= 0.79 in the effectiveness subscale. The reliability and validity of this instrument has been demonstrated in young people in high school in various countries such as China (Hu & Schaufeli, 2009), Turkey (Yavuz & Dogan, 2014), and Korea (Shin et al., 2011).

Procedure

Prior to collecting data, we contacted those in charge of the schools, and arranged various meetings to inform them of the aims of the study, assuring them of the confidentiality of the data. Following a data collection schedule, two members of the research team attended each school in order to apply the questionnaires. The tests were applied in the usual classroom each class had their lessons in, always in the presence of the corresponding teacher/tutor. At the beginning of each session, students were given instructions on how to complete the questionnaire, with time to answer any questions they had and to assure them that their answers were anonymous, and that their privacy would be respected in the statistics treatment of the date. The students completed the questionnaires individually, in an average of 15-20 minutes. In all cases ethical research standards were complied with, via an informed consent. The investigation was approved by the Bioethics Committee of the University of Almería (Ref: UALBIO2018/015).

Data analysis

The data were analysed in two phases, following the steps for validation from Álvarez-García et al. (2017). The first phase was to study the structure of the MBI. To do that, the sample was first randomly divided into two homogeneous, independent subsamples. The first (n=629) was used as a calibration sample,

to perform confirmatory factor analysis (CFA) of the original academic burnout model. The confirmatory factor analysis was performed with the following indexes of fit: χ^2/df, Comparative Fit Index (CFI), Tucker-Lewis index (TLI), Root Mean Square Error of Approximation (RMSEA) with its 90% confidence interval (CI). The χ^2/df index was used with acceptable values being below five (Bentler, 1989), values of CFI close to or above .90, and values of RMSEA below or very close to .08 (McDonald & Ho, 2002). As a general rule, a good fit is obtained when: ratio 2/DF $\leq$ 3; GFI and TLI > .90; CFI > .95; RMSEA $\leq$ .05. The proposed model showing good indexes of fit was subject to appropriate respecification, considering theoretical and statistical criteria (modification indexes, errors of estimation, standard errors of measurement). The Akaike Information criterion (Akaike, 1974) was used for model selection. The second sub sample (n=658) was used as a validation sample, in order to validate the respecified model. Cronbach alpha and Spearman-Brown was used to evaluate the reliability of the new scale, along with the parallel forms procedure.

In the second phase, an analysis was performed to support the invariant nature of the proposed factorial structure in terms of gender (boy/girl). Firstly, the goodness of fit of the structure in the two subsamples were checked separately (Models M0a-Boys & Model M0b-Girls). There were four added models: a) Model 1. Considering both subsamples simultaneously with an estimation free from parameters; b) Model 2. Demonstrating metric invariance; c) Model 3. Demonstrating scalar invariance; d) Model 4. Strict Invariance. Without a consensus criteria in order to determine the criteria to use to evaluate the differences of fit between the different added models (Byrne & Stewart, 2006). For the evaluation of fit in this study, we focused on ΔCFI. The model is interpreted as completely invariant if the value found for ΔCFI is lower than .01 (Cheung & Rensvold, 2002).

Data analysis was performed using the SPSS statistics package version 23.0 for Windows, and AMOS 22.

Results

Preliminary analysis

Firstly, the data indicate that the items of the MBI-SS exhibited a distribution within the limits of normality, according to the criteria from Finney and DiStefano (2006), for whom the maximum permitted values for asymmetry and kurtosis are 2 and 7 respectively; in our case the maximum values were -1.106 for asymmetry, and 1.383 for kurtosis. In the exploratory factor analysis we used the extraction of principle components with the direct Oblimin rotation method (KMO=.86) which allows correlation between existing factors. Table 1 gives the descriptive statistics for the calibration subsamples (n = 629).

Exploratory factor analysis of the original MBI-SS model

Principle component analysis (the method chosen, as the determinant level p= .001 shows intercorrelation between the variables, a requirement for this method) showed the existence of three components with eigenvalues above 1. The Scree Test diagram indicates the suitability of a rotation with three factors with eigenvalues of 4.991, 2.864, and 1.353, clearly separated from the fourth, with a score of .848 (Figure 1).

Table 1
Descriptive statistics. Calibration sample (*n* = 629)

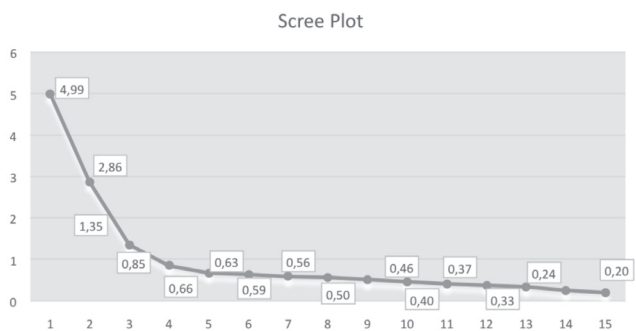| Items	n	M	SD	Skewness		Kurtosis	
				Statistic	Std. error	Statistic	Std. error
MBI-SS1	629	3.81	1.869	-.426	.097	-.904	.195
MBI-SS2	629	4.28	1.730	-.716	.097	-.584	.195
MBI-SS3	629	4.31	1.873	-.811	.097	-.572	.195
MBI-SS4	629	2.97	1.987	.136	.097	-1.195	.195
MBI-SS5	629	3.34	2.066	-.106	.097	-1.299	.195
MBI-SS6	629	2.80	2.166	.158	.097	-1.383	.195
MBI-SS7	629	2.92	2.110	.070	.097	-1.318	.195
MBI-SS8	629	2.64	1.967	.219	.097	-1.052	.195
MBI-SS9	629	1.89	1.945	.767	.097	-.576	.195
MBI-SS10	629	3.55	1.599	-.282	.097	-.472	.195
MBI-SS11	629	3.57	1.676	-.343	.097	-.627	.195
MBI-SS12	629	3.77	1.759	-.458	.097	-.663	.195
MBI-SS13	629	4.54	1.659	-1.106	.097	.417	.195
MBI-SS14	629	4.14	1.707	-.837	.097	-.006	.195
MBI-SS15	629	3.57	1.727	-.343	.097	-.693	.195

Figure 1. Scree plot of the factor analysis of the general background scale

Following the factor analysis, we selected items from the matrix of rotated components (direct Oblimin Rotation) whose factorial saturation was over .40. Thus, Table 2 presents 3 components. Factor 1, Emotional exhaustion, comprising 5 items all with loadings over .70, which explains 33.27% of the variance. Factor 2, comprising 6 items making up academic effectiveness, explaining 19.09% of the variance. Finally, factor 3, cynicism, composed of 4 items, with loadings over .70, explaining 9.019% of the variance.

Confirmatory Factor Analysis of the MBI-SS model and the MBI-SS-R model

Table 3 examines the fit of the different models of the questionnaire looking at the original MBI-SS model, the unidimensional MBI-SS model, the original model with a general MBI-SS factor, the revised MBI-SS three-factor model with 14, 13, and 12 items. The original model, the unidimensional model, and the original model with the general factor exhibited barely adequate values. The proposed MBI-SS model with thee factors and 12 items, corresponding to the output of the exploratory analysis, produced the best fit, once respecified, considering theoretical and statistical criteria (indexes of modification, errors of estimation, standard errors of measurement), which led to the removal of items

13, 2, and 13. The revised model demonstrated much better fit with the calibration sample. Moreover, the difference between the value of the Default model AIC = 175,300 and the Saturated model AIC = 156,000 is very small, indicating that this is probably the best of the models according to the Akaike selection criteria.

Figure 3 gives the index of fit for the proposed model of MBI-SS consisting of three factors and 12 items with the validation sample

Table 2
Factorial structure, commonalities (h²) eigenvalues, Cronbach alpha, and percentage of variance explained (*n* = 629). Extraction method: Factorisation of principle components

	F1	F2	F3	h²
Item 1	**.779**			.609
Item 2	**.808**			.657
Item 3	**.797**			.636
Item 4	**.742**		.565	.672
Item 5	**.767**		.539	.684
Item 6	.525		**.784**	.702
Item 7	.530		**.784**	.710
Item 8			**.714**	.529
Item 9			**.753**	.572
Item 10		**.713**		.582
Item 11		**.791**		.631
Item 12		**.808**		.657
Item 13		**.660**		.545
Item 14		**.561**	-.502	.472
Item 15		**.716**		.550
Eigenvalue	4.991	2.864	1.353	
Percentage of variance explained	33.274	19.091	9.019	61.384
Kaiser-Meyer-Olkin		.858		
Barlett's sphericity		$\chi^2_{(105)} = 4164.087, p < .000$		
Cronbach alpha	.855	.817	.809	.745

Note: The items are listed in descending order of saturation. Visualisation coefficient >.40.
F1: Emotional exhaustion; F2: Academic efficacy; F3: Cynicism

Table 3
Indexes of fit for the different proposed models (calibration sample, *n*=629)

Model	χ^2 (df)	χ^2/df	CFI	TLI	GFI	RMR	RMSEA Est.	CI90% Inf.	CI90% Sup.
Original *MBI-SS* model	540.580 (87)	6.213	.889	.866	.888	.256	.091	.084	.099
Unidimensional *MBI-SS* model	1823.529 (90)	20.261	.577	.506	.638	.464	.175	.168	.182
Original *MBI-SS* model with general factor	540.580 (87)	6.213	.889	.866	.888	.256	.091	.084	.099
Revised three-factor *MBI-SS* model (14 items)	392.074 (74)	5.298	.917	.897	.915	.223	.083	.075	.091
Revised three-factor *MBI-SS* model (13 items)	273.943 (62)	4.418	.938	.922	.938	.211	.074	.065	.083
Revised three-factor *MBI-SS* model (12 items)	98.654 (47)	2.099	.984	.977	.975	.184	.042	.030	.053

Note: CFI = Comparative fit index; TLI = Tucker-Lewis index; GFI= Goodness of fit index; RMR= Root mean square of residuals; RMSEA = Root Mean Square Error of Approximation; CI = Confidence interval; *df* = degrees of freedom; Est. = Estimation; Inf. = Inferior; Sup. = Superior
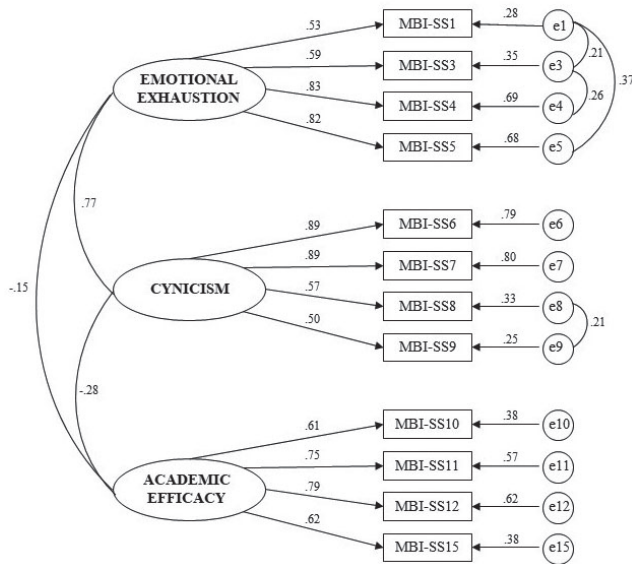

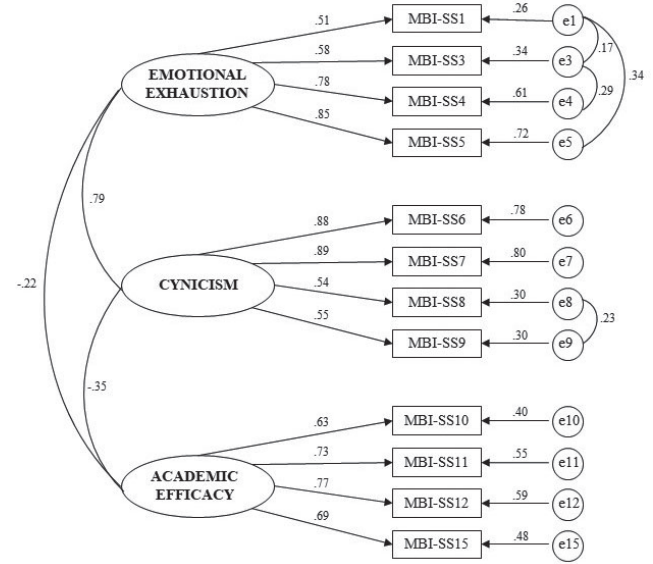**Figure 2**. Revised three-factor MBI-SS model (12 items) (calibration sample=629)

Figure 3. Revised three-factor MBI-SS (12 items) (validation sample n = 580)

(*n*=580). Emotional exhaustion is made up of items 1,3,4, and 5, cynicism of items 6,7,8, and 9, and academic effectiveness, items 10,11,12, and 15. Finally, the data from the Confirmatory Factor Analysis for the proposed model demonstrated adequate values for

the following indexes of fit : χ^2/*dl*= 3.155, CFI= .966, TLI= .953, GFI= .961, RMR= .167, RMSEA= .061 (.050-.072).

We examined the reliability of the model using Spearman-Brown coefficient p=.65 and Cronbach Alpha, which for the whole

Table 4
Multi group analysis of invariance by gender (boy/girl)

Model	χ^2	df	χ^2 / df	$\Delta\chi^2$	CFI	ΔCFI	IFI	RMSEA (CI 90%)
M0a (boy)	134.901 (*p*=.004)	94	1.435		.987		.987	.026 (.015-.036)
M0b (girl)	134.901 (*p*=.004)	94	1.435		.987		.987	.026 (.015-.036)
M1 (combined base model)	134.901 (*p*=.004)	94	1.435		.987		.987	.026 (.015-.036)
M2 (FS)	144.584 (*p*=.004)	103	1.403	9.683	.987		.987	.025 (.015-.035)
M3 (FS + Int)	149.712 (*p*=.006)	109	1.373	14.811	.987		.987	.024 (.014-.034)
M4 (FS + Int + Err)	192.559 (*p*=.000)	125	1.540	57.658	.979	.008	.979	.029 (.021-.037)

Note: FS=Factorial saturations, Int=Intercepts, Err=Errors

sample was α=.75, for Factor 1 (Emotional Exhaustion), with four items, α=.83, for Factor 2 (Cynicism), with four items, α=.82, and finally for Factor 3 (Academic effectiveness), with four items, α=.79.

Table 4 gives the values for the six different models in the analysis of variance with respect to gender. In all case the value of ΔCFI was below .01, demonstrating configural, metric, scalar, and strict invariance.

Discussion

This study was performed in order to obtain more information about the factorial structure of the MBI-SS in Spain, and to test its validity and reliability in a sample of secondary-school students.

The analyses demonstrated that the fit of the three-factor model of the MBI-SS was better than the single-factor model, which demonstrates the factorial validity of the hypothetical three-factor model: emotional exhaustion, cynicism, and academic effectiveness. This result is in line with previous research with secondary-school students from other countries and cultures (Hu & Schaufeli, 2009; Shin et al., 2011; Yavuz & Dogan, 2014), and with the many more studies done in the university environment (Campos & Maroco, 2012; Campos et al., 2011; Carlotto & Câmara, 2006; Faye-Dumanget et al., 2017; Gumz et al., 2013; Hazag et al., 2010; Hederich-Martínez & Caballero-Domínguez, 2016; Maroco & Tecedeiro, 2009; Pérez et al., 2012, among others).

However, the implementation of correlations between residuals in the model allows us to identify opportunities to improve the instrument, as we can detect paraphrasing in the items (Domínguez-Lara et al., 2018) or redundancies in the content evaluated by each one (Navarro-Loli & Domínguez-Lara, 2019). In the future, the wording and formulation of items 1, 3, 4, 5, 8, and 9 in the original questionnaire should be reviewed, along with the translation for the Spanish adaptation. It is possible that these items have similar sources of error, owing to a perceived redundancy (Byrne, 2009) or proximity of content, as the correlations were between items making up the same factor (Domínguez-Lara & Merino-Soto, 2017). In the study by Hu and Schaufeli (2009), they suggested reformulating items 4 and 13 of the MBI-SS for Chinese students.

In terms of the internal consistency of the Spanish adaptation compared to the study by Schaufeli et al. (2002), the values of Cronbach alpha for each of the MBI-SS subscales comply with the optimal criteria with the cutoff point at .70 (Cronbach, 1951). The values were even higher than those found in other studies using similar sample populations (Hu & Schaufeli, 2009). In their study, Yavuz and Dogan (2014), with a large sample of Turkish students, found that indices from the explanatory factor analysis

did not support the suggestion of a three-dimensional structure for the scale, however they did obtain relatively reliable values for the subscales of exhaustion, cynicism, and academic effectiveness, with Cronbach alpha ranging between .83 and .87.

On the other hand, we must be cautious with the generalisation of the results, as this study was with Spanish students and there may be cultural differences if the results were to be generalised to other Spanish-speaking countries. In addition, the study has the limitations of transversal studies, in that it is not possible to establish causal relationships between the variables. Future transversal and longitudinal studies with samples of students from other Spanish and Latin American regions will help to overcome these limitations.

This study shows that the Spanish adaptation of the MBI-SS supports the factorial structure of the test to measure academic burnout in Spanish secondary-school students. The exploratory, and confirmatory factor analyses support a 12-item model, exhibiting the best levels of fit, distributed in three factors: emotional exhaustion (items 1, 3, 4, and 5), cynicism (items 6, 7, 8, and 9), and academic effectiveness (items 10, 11, 12, and 15). However, we recommend reformulating some items (particularly items 1, 3, 4, 5, 8, and 9) to improve the psychometric properties of the adapted version of the questionnaire. In terms of internal consistency, the values obtained for the three subscales of the questionnaire were acceptable. These results indicate that the proposed instrument has a suitable factorial structure and internal consistency, and is useful for evaluating academic burnout in the adolescent population in secondary school. Nonetheless, future research should reevaluate this slightly reformulated version of the MBL-SS in the Spanish population. The adaptation of this instrument has significant educational implications for the evaluation, prevention, and treatment of academic burnout in our context, especially in the adolescent stage of development.

Acknowledgments

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