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Validation of the Maslach burnout inventory-student survey (MBISS) in the Peruvian academic context

Rildo Santos Bellido-Medina
Universidad Nacional de San Agustín de Arequipa, Arequipa, Perú
Email: rbellidome@unsa.edu.pe

José Luis Evangelista-Aliaga
Universidad Nacional de San Agustín de Arequipa, Arequipa, Perú
Email: jevangelista@unsa.edu.pe

María Elena Gamarra-Castellanos
Universidad Nacional de San Agustín de Arequipa, Arequipa, Perú
Email: mgamarrac@unsa.edu.pe

Jessica Yesenia García-Apaza
Universidad Nacional de San Agustín de Arequipa, Arequipa, Perú
Email: jgarciaap@unsa.edu.pe

Enrique Jarly Gonzales-Manrique
Universidad Nacional de San Agustín de Arequipa, Arequipa, Perú
Email: egonzales@unsa-upbs.edu.pe

Blanca Morales Palao
Universidad Nacional de San Agustín de Arequipa, Arequipa, Perú
Email: bmorales@unsa.edu.pe

José Calizaya-López
Universidad Nacional de San Agustín de Arequipa, Arequipa, Perú
Email: jcalizayal@unsa.edu.pe

***Abstract*---**To determine Burnout syndrome, the questionnaire has been used to measure samples of workers primarily in the health sector and then in new contexts such as security and education, based on the assumption that academic activity is equivalent to that of a formal worker. In that sense, it has been shown that students may experience burnout along with disinterest, self-sabotage in academic activities and feelings of helplessness. It was proposed to

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analyze the psychometric properties of the academic burnout syndrome inventory in university students in Arequipa, Peru. This was an instrumental study, in which 755 people participated, 163 cases were withdrawn for incorrect answers, obtaining a sample of 592 students of both sexes. The Maslach Burnout Inventory validated in Colombia was used, and the students were contacted after authorization from the educational authorities and the respective informed consent. Results were obtained indicating that the test has a factorial structure of three dimensions: Emotional exhaustion, personal fulfillment and depersonalization. The omega coefficient for the three factors reveals high-reliability indicators (.89). It is concluded that the inventory shows adequate validity and reliability indicators for the measurement of Burnout syndrome in university students in the Peruvian context.

***Keywords*---**validation, Maslach burnout inventory, student survey (MBISS), Peruvian academic context.

Introduction

Since Freudenburg (1974) described burnout syndrome and Cristina Maslach characterized its dimensions (1981), the Burnout Maslach Inventory became one of the most important instruments for measuring burnout syndrome primarily in health sector workers and gradually extended to new contexts, such as security and education (Alvarez-Pérez & López-Aguilar, 2021). Schaufeli et al. (2002) created the MBI-SS (Maslach Burnout Inventory Student Survey) questionnaire based on the assumption that academic activity was equivalent to that of a formal worker. The application of this instrument showed that students can also present burnout together with disinterest, self-sabotage in the face of academic activities and feelings of incompetence as students (Comella et al., 2022).

In Spain, Portugal and the Netherlands, Martínez et al. (2005) examined the psychometric characteristics of the MBI-SS in samples of 1661 students with results that showed a three-factor structure (burnout, cynicism, self-efficacy) that perfectly matched expectations, with high levels of reliability. An original line of research developed by Salmela-Aro et al. (2012) proposed and validated a new nine-item instrument for the identification of academic burnout, the School Burnout Inventory (SBI-U). This instrument has been translated into Spanish and applied in Spanish and Latin American population samples (Aguilar-Bustamante & Riaño-Hernández, 2013; Merino et al., 2013; Moyano & Riaño-Hernández, 2013). The trifactorial structure is practically identical to that presented by the MBI-SS, as well as acceptable reliability levels for each scale.

In Latin America, research on Burnout syndrome is growing, although the psychological mechanisms and the efficiency of measurement in cultural differences have yet to be explored. In particular, the MBI-GS questionnaire has been recognized as a satisfactory measure of burnout for use in different sectors and occupational groups and its validity has been tested in multiple countries

and languages, but in Latin America there is a lack of research on this regard (Salanova et al., 2005; Breso et al., 2005).

In Colombia, the research conducted by (Caballero et al., 2010), examines the factorial validity of the MBI-SS, the consistency of the scales proposed and contrasts the results obtained in its application to a sample of 820 students of health careers in universities on the Colombian Caribbean coast. The results indicate a good adjustment of the instrument, but question the normative data used for the interpretation of the results. The research conducted by (Montero, Soria, 2020) sought to adapt the Maslach Burnout Inventory - Student Survey (MBI-SS) Colombian version in university students in Lima, through a non-experimental, cross-sectional, descriptive and instrumental study. They applied the test to 950 university students in Lima and found empirical evidence of validity in the internal structure of the 14 items.

In a study conducted by (Arias et al., 2017) in the city of Arequipa, Peru 87 physicians with an average age of 35 years to detect the incidence of Burnout syndrome, and it was found that 6.9% of the sample presents severe levels of the syndrome and that there are no significant differences according to sex, length of service and economic income, but there are significant differences according to marital status and place of work. These findings and explorations show that burnout syndrome is no longer exclusive to the healthcare work environment, and for this reason, it is important to have detection tools that are better adapted to the psychosocial context, to be able to detect, monitor and treat it adequately. Therefore, the objective of this study was to analyze the psychometric properties of the academic burnout syndrome inventory in university students in Arequipa, Peru.

Methodology

Participants

A total of 755 people participated, of whom 163 cases had to be withdrawn for incorrect answers to the MBI-ES instrument (n = 592). Ages ranged from 16 to 52 years. The mean was 21.56 years and the SD was 3.77 years. According to sex, 448 were female (75.68%), 139 were male (23.48%) and 5 persons did not respond. Regarding economic dependence, 494 (83.44%) reported being dependent, 95 (16.05%) reported being self-supporting and 3 persons did not answer. 65.88% said they only studied, 33.45% said they studied and worked and 4 persons did not answer.

Instruments

The inventory used was the Maslach Burnout Inventory-Student Survey (MBISS), validated in Colombia by Hederich-Martínez and Caballero-Domínguez (2016); which is a questionnaire for the evaluation of academic burnout syndrome of collective application and individual diligence. It evaluates the feeling of not being able to give more of oneself, both physically and psychically (burnout), the presence of a negative attitude of devaluation and loss of interest in the study (cynicism) and the existence of doubts about one's own ability to perform

academic work (academic self-efficacy). All items in each of these three subscales are scored on a 7-point frequency scale, ranging from 0 (never) to 6 (always). Sociodemographic characteristics such as age, sex, economic dependence and occupation were also added to the inventory.

Procedures

For the application of the instrument, the students were contacted, then the instrument was adapted to google forms and applied individually to the student through their e-mails after being informed of the objective of the research, the instructions of the instrument and the confidentiality of the data provided, accepting to participate voluntarily and agreeing to the informed consent. he present study is part of the research: Estudio Multicéntrico y Multidimensional de la Salud Mental de la Población de Barranquilla y Arequipa (Multicenter and Multidimensional Study of the Mental Health of the Population of Barranquilla and Arequipa.), Colombia-Perú, which was reviewed and approved by the Ethics Committee of the Universidad de la Costa.

Data Analysis

The statistical software R in its version 4.1.2 and its development environment RStudio version 2021.9.382 were used. Descriptive analyses were performed on the items through the statistics of Mean, Standard Deviation, Skewness and Kurtosis, then the matrix of polychoric correlations between the items of the instrument was obtained. An Exploratory Factor Analysis and a Confirmatory Factor Analysis (Weighted Least Squares Robust Estimator WLSMV) were applied for the validation of the structure. For the evaluation of the fit indices, the following criteria were taken into account: values ≥ .90 and ≥ .95 in the CFI and TLI as adequate fit and good fit respectively, and values ≤ .08 and ≤ .05 in the RMSEA as adequate fit and good fit respectively and for the SRMR, values ≤.08 and ≤.06 were considered as a good fit and ideal respectively. In addition, the reliability of the instrument is evaluated using the McDonald Omega coefficient.

Results

Table 1 shows the descriptive statistics of the 14 items. It is observed that item 13 has the highest mean value (4.82), followed by item 10 (4.58), item 12 (4.57) and item 14 (4.50). The values of the shape statistics (Skewness and Kurtosis) are within the range of -2 to +2.

Table 1
Descriptive statistics of the items

Items	*M*	*DE*	*Asim.*	*Curt.*	Ítems	*M*	*DE*	*Asim.*	*Curt.*
I1	4.30	1.46	-0.80	0.08	I8	1.23	1.68	1.34	0.69
I2	4.15	1.69	-0.82	-0.26	I9	1.42	1.73	1.14	0.22
I3	3.69	1.76	-0.51	-0.71	I10	4.58	1.65	-1.14	0.24
I4	4.16	1.76	-0.75	-0.46	I11	4.30	1.59	-0.90	-0.08
I5	3.80	1.68	-0.52	-0.66	I12	4.57	1.40	-1.02	0.37
I6	1.43	1.80	1.03	-0.16	I13	4.82	1.43	-1.20	0.68

I7	1.43	1.80	1.02	-0.19	I14	4.50	1.44	-0.98	0.33

A matrix of polychoric correlations between the 14 items is elaborated. It is observed that the correlations range from -.48 to .84. The first 4 items present correlations greater than .60, as well as between items 6, 7 and 8. The correlations between items 11, 12 and 13 are greater than .59.

Table 2
Matrix of polychoric correlations between items

	I1	I2	I3	I4	I5	I6	I7	I8	I9	I10	I11	I12	I13	I14
I1	1													
I2	.67	1												
I3	.63	.77	1											
I4	.62	.67	.70	1										
I5	.62	.69	.70	.74	1									
I6	.26	.31	.36	.24	.35	1								
I7	.26	.35	.36	.29	.34	.79	1							
I8	.23	.32	.35	.30	.31	.68	.79	1						
I9	.27	.38	.38	.30	.34	.65	.76	.84	1					
I10	-.05	-.08	-.12	.02	-.04	-.27	-.25	-.27	-.28	1				
I11	.00	-.09	-.07	.01	-.02	-.28	-.30	-.25	-.31	.54	1			
I12	-.07	-.09	-.09	.02	.00	-.32	-.31	-.29	-.34	.49	.66	1		
I13	-.05	-.10	-.11	.02	-.06	-.45	-.48	-.48	-.47	.53	.59	.68	1	
I14	-.04	-.09	-.12	-.01	-.03	-.35	-.34	-.35	-.37	.57	.61	.71	.72	1

An exploratory factor analysis was applied to analyze the evidence based on internal structure. The Kaiser-Meyer-Olkin coefficient showed the adequacy of the data for the analyses KMO = .87 and all KMO values for individual items were greater than .81. Bartlet's test of sphericity $x2(91) = 4635.19$, $p < .001$, indicating that the correlations between items were sufficiently high for the AFE. The analysis suggests that the instrument has three factors that explain 50.00% of the variance. Table 3 shows that the factor loadings were greater than .66. The items included in Factor 1 (2, 3, 4, 5 and 1) refer to emotional exhaustion. Factor 2 comprises items 12, 14, 11, 13 and 10 covering self-fulfillment and Factor 3 (items 8, 7, 9 and 6) refers to depersonalization.

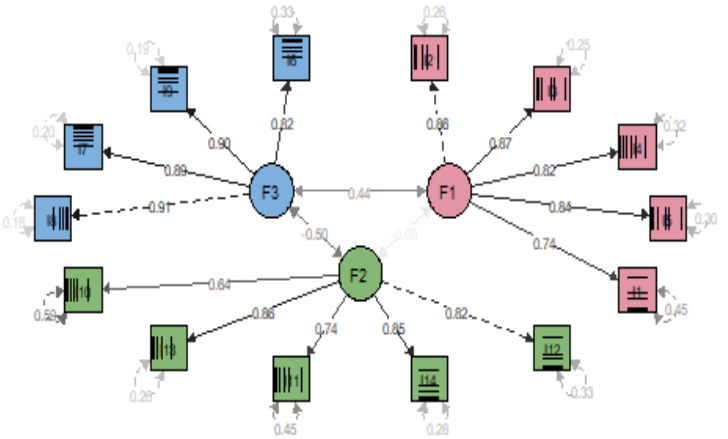
Table 3
Factor loadings of the AFE

Items	F1	F2	F3
2. I am tired in the morning when I wake up and have to face another day at the university.	.85		
3. Studying or going to class all day is a stress for me.	.84		
4. I find myself physically exhausted at the end of a day at the university.	.84		
5. I am exhausted from so much studying.	.81		
1. The academic activities of this career have me emotionally "exhausted"	.77		
12. In my opinion I am a good student.		.85	

14. During lessons, I am confident that I am effective in getting things done.	.85	
11. I believe that I contribute effectively to classes at the university.	.78	
13. I am encouraged to achieve goals in my studies.	.72	
10. I can effectively solve problems related to my studies.	.66	
8. I have lost interest in my career since I started college.		.94
7. I doubt the importance and value of my studies.		.91
9. I have lost enthusiasm for my career.		.82
6. I have distanced myself from my studies because I think that they will not be really useful.		.74

The structure found was validated through a Confirmatory Factor Analysis. A CFA was applied to the 3-factor structure using the WLSMV estimator. The fit indices had values within the appropriate range (x2(74) = 232.08, p < .001; CFI = .987; TLI = .984; RMSEA = .060; SRMR = .040. Figure 1 shows the factor loadings of the developed CFA.

Figure 1
AFC factor loadings



To evaluate reliability, the Omega coefficient was applied to the 3 factors found. In Factor 1: emotional exhaustion, the coefficient was .89 (95% CI: .88 - .91), in Factor 2: self-fulfillment, the coefficient was .85 (95% CI: .82 - .87) and in Factor 3: depersonalization, the coefficient was .89 (95% CI: .87 - .91).

Discussion

The objective of the present study was to analyze the psychometric properties of the academic burnout syndrome inventory in university students, Maslach Burnout Inventory Student Survey (MBI-SS) in the Peruvian context, in the city of Arequipa, the results show that the test has a factorial structure of three dimensions, which are emotional exhaustion, personal fulfillment and

depersonalization. The Omega coefficient in the three factors analyzed reveals high-reliability indicators for each of them. These results are consistent with those found by Caballero et al. (2010) who found a good fit of the instrument (MBI-SS), except for the questioning of the normative part for the interpretation of the results. Likewise, regarding the study that sought the adaptation of the same 14-item instrument in its Colombian version, in university students in Lima (Montero, 2020). There is a coincidence in the results of this study in terms of adequate scores regarding the levels of reliability by internal consistency.

According to the research of Salanova et al. (2005), using structural equation modeling, showed empirical support for the model. The three dimensions explored by the test, emotional exhaustion, self-fulfillment and depersonalization, when confirmatory of the syndrome, predict the occurrence of the syndrome and its negative implications in people's lives. Also, in addition to the study of Burnout in different work environments, special attention has been paid in recent years to the concept of academic burnout, being necessary for its more precise delimitation, as it borders with other disorders such as depression and anxiety (Caballero et al, 2010), which suggests a higher incidence of the syndrome in the academic environment with significant emphasis.

Subsequent studies with larger and more diverse samples will contribute to consolidating the instrument as an adequate predictor of the presence of Burnout syndrome in academic settings, as well as to find the consistencies and inconsistencies that will allow polishing the tool for its standardization at a national level. Concerning some limitations of the study, regarding the choice of a sample by convenience, which could bias the results presented, due to the lack of representativeness of the same. Another limitation is the use of only one source of evidence for the validity for the present study. Although the results are consistent with previous studies, future studies must address different sources of evidence to give greater strength to the instrument analyzed. Despite these limitations, the instrument is considered to be valid and reliable in its 3 dimensions.

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