

Psychometric properties of the Spanish Burnout Inventory in Colombian health professionals¹

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Abstract

This research aimed to evaluate the psychometric properties of the Spanish Burnout Inventory (SBI) in the healthcare population. It is an instrumental study, carried out with a sample made up of 294 professionals; An exploratory factor analysis and a structural equation model were available to identify the distribution of the items and the validity of the instrument, as well as an internal consistency analysis with Macdonald's ω to determine the reliability. The items showed an extraction superior to .30, reason why they are conserved for the analysis; Furthermore, both in the exploratory analysis and in the Structural Equation Modeling (SEM) it is shown that the items contribute to each factor a value greater than .40, preserving the original structure of the questionnaire, and the internal consistency identified was greater than .70 for each factor obtained. The results show that this instrument has adequate psychometric properties of validity and reliability, which make it relevant to measure burnout in the context described.

Keywords

Burnout, Factorial analysis, Structural equation model SEM.

Propiedades psicométricas del Inventario Español de Burnout en profesionales de la salud colombianos

Resumen

Esta investigación tuvo como objetivo evaluar las propiedades psicométricas del Inventario Español de Burnout (SBI) en población del área de la salud. Es un estudio instrumental, realizado con una muestra formada por 294 profesionales. Se dispuso de un análisis factorial exploratorio y un modelo de ecuaciones estructurales para identificar la distribución de los ítems y la validez del instrumento, así como un análisis de consistencia interna con el coeficiente ω de Macdonald para determinar la confiabilidad. Los ítems presentaron una extracción superior a .30, por lo que se conservaron para el análisis. Además, tanto en el análisis exploratorio como en el Modelo de ecuaciones estructurales (SEM) se muestra que los ítems aportan a cada factor un valor mayor a .40, conservando la estructura original del cuestionario; la consistencia interna identificada fue mayor a .70 por cada factor obtenido. Los resultados muestran que este instrumento posee propiedades psicométricas de validez y confiabilidad adecuadas, que lo hacen relevante para medir el burnout en el contexto descrito.

Palabras clave

Burnout, Análisis factorial, Modelo de ecuaciones estructurales SEM.

Propriedades psicométricas do Inventário Espanhol de Burnout em profissionais de saúde colombianos

Resumo

Esta pesquisa teve como objetivo avaliar as propriedades psicométricas do Inventário Espanhol de Burnout (SBI) na população de saúde. Trata-se de um estudo instrumental, realizado com uma amostra composta por 294 profissionais. Uma análise fatorial exploratória e um modelo de equação estrutural foram disponibilizados para identificar a distribuição dos itens e a validade do instrumento, bem como uma análise de consistência interna com o ω de Macdonald para determinar a confiabilidade. Os itens apresentaram uma extração superior a 0,30, razão pela qual são conservados para a análise. Além disso, tanto na análise exploratória quanto na Modelagem de Equações Estruturais (SEM) mostra-se que os itens contribuem para cada fator com valor maior que 0,40, preservando a estrutura original do questionário, e a consistência interna identificada foi maior que 0,40. 70 para cada fator obtido. Os resultados mostram que este instrumento possui propriedades psicométricas adequadas de validade e confiabilidade, o que o torna relevante para medir o burnout no contexto descrito.

Palavras-chave

Burnout, Análise fatorial, Modelo de equação estrutural SEM.

Introduction

Burnout Syndrome is defined as a psychological state of the subjects that involves chronic stress with high emotional load for long periods in the work context (Salgado-Roa & Leria-Dulcic, 2020), which leads to mood difficulties even with neuroendocrinoimmunological consequences (Gómez-Acosta et al., 2022). Burnout has been described as an increase in symptoms such as depersonalization, lack of self-realization, sustained physical and emotional exhaustion in the face of challenges posed by work contexts (Bährer-Kohler, 2013; Muñoz & Velásquez, 2016), particularly those related to health services (García-Borrero et al., 2022), education, customer care, domestic work and care of chronically ill patients (Essary et al., 2018), among other occupational fields.

This syndrome corresponds to a high-impact problem, not only at the work level (affecting productivity and efficiency) but also at the personal level, with important psychological consequences such as reduction of intrinsic motivation, anxiety, greater susceptibility to guilt, and low self-esteem (Bährer-Kohler, 2013), and physical implications such as hypertension, muscle pain, sexual impotence, risk of heart attacks and predisposition to diabetes mellitus (Uribe-Prado, 2007), as well as lifestyle changes that connote a greater tendency to consume psychoactive substances, poor sleep hygiene, sedentary lifestyles and drastic changes in eating patterns (Ortega-Herrera et al., 2018).

Some of the factors that promote Burnout Syndrome are excessive

workload, limited available resources, unorganized work environment, lack of job satisfaction, lack of job feedback, lack of autonomy and flexibility in functions, time pressure to deliver products or offer solutions, excessive bureaucratization, uncertainty in the type of job contract, and conflicts with managers or with the work team (Quiceno & Vinaccia, 2007; Bährer-Kohler, 2013; Hienemann & Hienemann, 2017).

In contrast to some studies developed on the matter around the world, it was found that between 10% and 13% of the Dutch working population reported Burnout (Kant et al., 2003), while health care workers in Sweden reported that condition as high as 27.5% (Norlund et al., 2010). In turn, Motie & Reza (2018) found a negative correlation between burnout and quality of life at work in Ireland, while Figueiredo-Ferraz et al. (2009) determined the presence of 15% burnout in a sample of Portuguese teachers. In Mexico, Flores & Ruíz (2018) compared health professionals with administrative staff, finding that the latter tended to register higher levels of depersonalization; while Tabares-Díaz et al., (2020) present in their systematic review that the levels of burnout in Latin American teachers correlate positively with variables such as age, seniority in the position, health difficulties, task demands, hostile interpersonal relationships and inadequate conditions in the workplace.

By the other hand, Osorio-Guzmán et al., (2021) found in Mexican health professionals that 79% of the participants scored low in emotional fatigue, 64% obtained low scores in depersonalization, and 71% had high professional realization, and in that

same country Brito, Nava & Juárez (2015) identified that the perception of little social support predicts high rates of burnout in nurses. Likewise, Olivares-Faúndez et al. (2017) demonstrated the relationship between role conflict and ambiguity as predictors of burnout with health sector workers.

In Colombia, the general prevalence of burnout among nurses was found to be between 4.1% (Muñoz & Velásquez, 2016) and 16% (Gutiérrez-Lesmes et al., 2018), while García-Borrero et al., (2022) report that these prevalence's in medical surgical specialists fluctuate between 17% and 45%.; further Tejada & Gómez (2012) found burnout in the psychiatrists who participated in their study at 9.9%, whereas Jácome et al., (2019) found the presence of the syndrome in 47.5% of residents from medical specialties evaluated in their research. Likewise, Diaz et al., (2010) showed a prevalence of 15% in teachers from a private school, compared with 22% of those belonging to a public school, while Marengo-Escuderos & Avila-Toscano (2016) identified with a sample of high school teachers that the levels of emotional exhaustion and depersonalization are 23% and 22.5% respectively. Equally, Serrano et al., (2016) refer to a sample of medical students that their Burnout levels exceed 10%. Finally, Gómez-Acosta et al. (2022), find with a sample of psychologists that those with greater job instability and who work in organizational and clinical contexts are the ones who tend to show higher rates of Burnout.

There are specific instruments to measure Burnout Syndrome, being the Maslach Burnout Inventory [MBI] (Maslach & Jackson, 1986) the best known; from this, adaptations of the

MBI have been developed such as the General Survey [MBI-GS], the MBI-HSS (Human Service Survey), and the MBI-ES (Educatory Service), versions that keep the measure of the three factors defined by the genuine MBI (emotional burnout, depersonalization, and decrease in personal satisfaction). On the other hand, there are other instruments for the measurement of Burnout that are less well-known such as the "Staff Burnout Scale for Health Professionals" [SBS-HP] (Jones, 1980), the "Shirom Melamed Burnout Questionnaire" [SMBQ] (Shirom & Melamed, 2006), the Short Burnout Questionnaire (Moreno-Jiménez et al., 1997), the Burnout Inventory revised for Sportsmen (Garcés de los Fayos, 2004), the Oldenburg Burnout Inventory [OLBI] (Demerouti et al., 2003), the "Burnout Measure" (Maslach-Pines, 2005), the "Copenhagen Burnout Inventory" (Kristensen et al, 2005), and the Mexican Occupational Wear Scale [MOWS] (Uribe-Prado, 2007).

In accordance with the above, it can be identified that the tests planned for the evaluation of Burnout are not homologous to each other, since they can be oriented both to the general population and to specific populations (athletes, health professionals, educators, operators, administrative personnel, among others) in which situations that can cause emotional exhaustion syndrome related to the challenges and circumstances of the occupational context in which these people operate are highlighted, which justifies the development of adaptations such as those already mentioned. However, important differences are also recognized in terms of the conceptualization of Burnout, the extension of the instruments, the cultural relevance and the linguistic precisions

referred to the contexts in which this construct is intended to be documented (Schaufeli et al., 2020).

One of the most widely used instruments for measuring this psychological property is the “Spanish Burnout Inventory” [SBI]; Gil-Monte & Zuñiga-Caballero, 2010; Gil-Monte & Oliveros, 2011), which is based on the idea that when the first manifestations of affective and cognitive impairment seem, negative attitudes towards the people with whom one interacts also arise, with occasional feelings of guilt (Gil-Monte et al., 2017), which makes it a more inclusive instrument to measure the syndrome in question.

Although this last instrument is increasingly used in Latin America (Díaz & Gómez, 2016) both for its psychometric stability and the validity of the theoretical model that supports it (Serna et al., 2018), and earlier validations of the scale have been carried out on health professionals from Italia (Gil-Monte et al., 2017), Chile (Gil-Monte & Oliveros-Faúndez, 2011) and Mexico (Gil-Monte & Zuñiga-Caballero).

In Colombia, a validation exercise of the psychometric properties of SBI is reported in a similar population (medical-surgical specialists) carried out by García-Borrero et al., 2022. However, the research reported in this article complements the work of García-Borrero and collaborators to the extent that it specifically includes a sample with participants from different health areas, whose factorial analysis with SEM makes it possible to control the sources of general use of the construct,

includes cross loadings within the model (Henríquez et al., 2020), and also incorporates an internal consistency analysis with McDonald's ω , since this last coefficient works directly with factor loadings, does not depend on the sample size and is stable. despite the fact that the equivalence principle is not necessarily fulfilled (Ventura-León & Caychó-Rodríguez, 2017; Viladrich et al., 2017).

Method

Type of Study

The present work is classified as instrumental research (Ato et al., 2013), since its interest is to evaluate the psychometric properties of a scale.

Participants

In the study participated 294 health professionals practicing in Colombia, distributed among 57 men and 237 women, obtained through a convenience sampling at a clinic in the city of Neiva, Colombia. With include the suggestions of the clinic directives, we sought to get a heterogeneous sample in terms of their marital status (47.3% single), number of children (39.8% without children's), and years of professional practice (50.7% with less than 5 years of employment relationship); both technical and professional employees were included (table 1).

Table 1
Participants' Demographics

Age (years)			Marital Status		
	f	%		f	%
18-22	25	8.5	Single	139	47.3
23-27	61	20.7	Married	75	25.5
28-32	60	20.4	Divorced	12	4.1
33-37	49	16.7	Non-married couple	61	20.7
38-42	26	8.8	Widower	7	2.4
43-47	21	7.1			
48-52	18	6.1			
53 and older	3.4	11.6			

Socioeconomic Strata			Profession		
	f	%		f	%
1	76	25.9	Doctor	37	12.6
2	149	50.7	Nurse	24	8.2
3	40	13.6	Nursing assistant	131	44.6
4	26	8.8	Bacteriologist	10	3.4
5	3	1.0	Dentist	16	5.4
			Dental assistant	26	8.8
			Psychologist	7	2.4
			Support personnel	43	14.6

Number of Children			Years of Professional Practice		
	f	%		f	%
0	117	39.8	1-5	149	50.7
1-3	166	56.5	6-10	49	16.7
4-6	11	3.7	11-15	32	10.9
			16-20	18	6.1
			21-25	16	5.4
			25-30	10	3.4
			More than 30	20	6.8

Job status			Wage (Minimum Monthly Wage)		
	f	%		f	%
Fixed-term	54	18.4	1-2 MMW	206	70.1
Undefined term	93	31.6	2-3 MMW	44	15.0
Work or labor contract	9	3.1	3-4 MMW	16	5.4
Apprenticeship contract	2	.7	> 4 MMW	28	9.5
Temporary, occasional or accidental contract	12	4.1			
Civil contract for service provision	124	42.2			

Working Time in Health Clinic			Number of Patients Treated per Day		
	f	%		f	%
Less than 1 year	95	32.3	1-5	14	4.8
1-5 years	114	38.8	6 - 11	29	9.9
6 - 10 years	26	8.8	12-17	66	22.4
11-15 years	16	5.4	18 or more	185	62.9
16-20 years	11	3.7			
Over 21 years	32	10.9			

Source: Authors' own elaboration.

Instrument

The “Spanish Burnout Inventory” (SBI), was applied (Gil-Monte, 2005). It is an instrument made up of 20 items on a five-point scale, ranging from 0 (Never) to 4 (Very frequently: every day), which groups the reagents into four subscales called: Illusion about work (5 items), Psychic attrition (4 items), Indolence (6 items), and Guilt (5 items). Low scores on the “Illusion about Work” category, as well as high scores on “Psychic Attrition”, “Guilt”, and “Indolence” indicate high levels of BS. In a complementary way, a card was applied to know the socio-demographic data.

Additionally, a sociodemographic and labor data sheet was applied, which inquired about the categories of age (years), marital status, socioeconomic strata, profession, number of children, years of professional practice, job status, wage (minimum monthly wage), working time in health clinic and number of patients treated per day.

Procedure

After the project was submitted and approved by the respective ethics committees, partnerships were established with the health institution for access to the sample; Once the respective approval was obtained, the participants were provided with information about the research, and the data was collected, after signing the respective informed consent following ethical considerations relevant to research with human subjects in Colombia (Resolution 008430 of the Ministry of Health, and the Code of Ethics and Deontology of Psychologists - Act

1090 of 2006), guaranteeing confidentiality and anonymity, clarifying doubts promptly, and ensuring that the questionnaires were fully answered. The participants answered the questionnaire once the working day was over, in a space free from distractions. Also, these people did not receive any economic compensation, and an executive report was provided for the research team to the institution about the Burnout levels recorded by the sample.

Data Analysis

An internal consistency analysis was also performed using a McDonald’s omega, with a cut-off point of .70 (Viladrich et al., 2017). An exploratory factor analysis was performed using an unweighted least-squares extraction method, understanding that the scores did not have a parametric distribution (Ximénez & García, 2005), and a direct oblique rotation method, followed by a confirmatory factor analysis using a maximum likelihood estimation method. Exploratory factor was performed with SPSS® version 26, reliability analyses was performed with JASP® version 0.14.1, and confirmatory factor analysis with AMOS® application, version 24.

Results

The viability of the sample size and correlation matrix was determined through the Kaiser-Meyer Olkin (KMO) and the Bartlett’s sphericity test, which supports that the number of participants is sufficient and that the correlation matrix supports confirmatory factor analysis (table 2).

Table 2
KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sample Adequacy	.839
Bartlett's Test of Sphericity	Approx. Chi-Square
	1703.9
	Df.
	190
	Sig.
	< .01

Source: Authors' own elaboration.

The extraction of the reagents in the exploratory factorial analysis was higher than .30 for all items (Table 3), which refers to its usefulness as an independent reagent and suggests the conservation of all items. While, the exploratory factor analysis identified the structure of the four factors that corresponded to the data proposed by the original study (Gil-Monte, 2005), and together they explained 52.90% of the total accumulated variance. The factors were shaped as follows: Factor 1 (Items

9, 13, 16, 20 and 4), Factor 2 (Items 15, 10, 19, 5 and 1), Factor 3 (Items 17, 8, 18 and 12), and Factor 4 (Items 3, 6, 2, 11, 14 and 7), according to Table 3.

On the other hand, the reliability analyses show a McDonald's ω of .76 (95% CI: .72-.80) for the entire test. As for the internal consistency for each factor, the first one (Guilt) obtained an ω of .77 (95% CI: .73-.81); the factor 2 (Illusion) refers an ω of .72 (95% CI: .67-.77); while, factor 3 (Attrition) shows an ω of .83 (95% CI: .80-.86); and finally, factor 4 (Indolence), shows an alpha of .71 (95% CI: .65-.76). Furthermore, the McDonalds' ω analysis showing the value if any of them is eliminated. Similarly, item-test reliability analyses were carried out for each subscale, finding positive and higher than .30 correlations between items and from item to scale. In addition, to McDonald's ω affected by the hypothetical elimination of each reagent, which reaffirms its internal consistency (table 3).

Table 3
Extraction, Distribution of Reagents in Each Factor and reliability if any item is eliminated

	Extraction	Factor 1	Factor 2	Factor 3	Factor 4	McDonald's ω
Item 9	.647	.789				.718
Item 13	.514	.688				.725
Item 16	.463	.673				.737
Item 20	.433	.654				.736
Item 4	.341	.481				.751
Item 15	.590		.753			.779
Item 10	.417		.640			.772
Item 19	.321		.566			.776
Item 5	.320		.560			.776
Item 1	.309		.504			.771
Item 17	.642			.797		.722
Item 8	.534			.731		.731
Item 18	.535			.729		.730
Item 12	.504			.708		.730

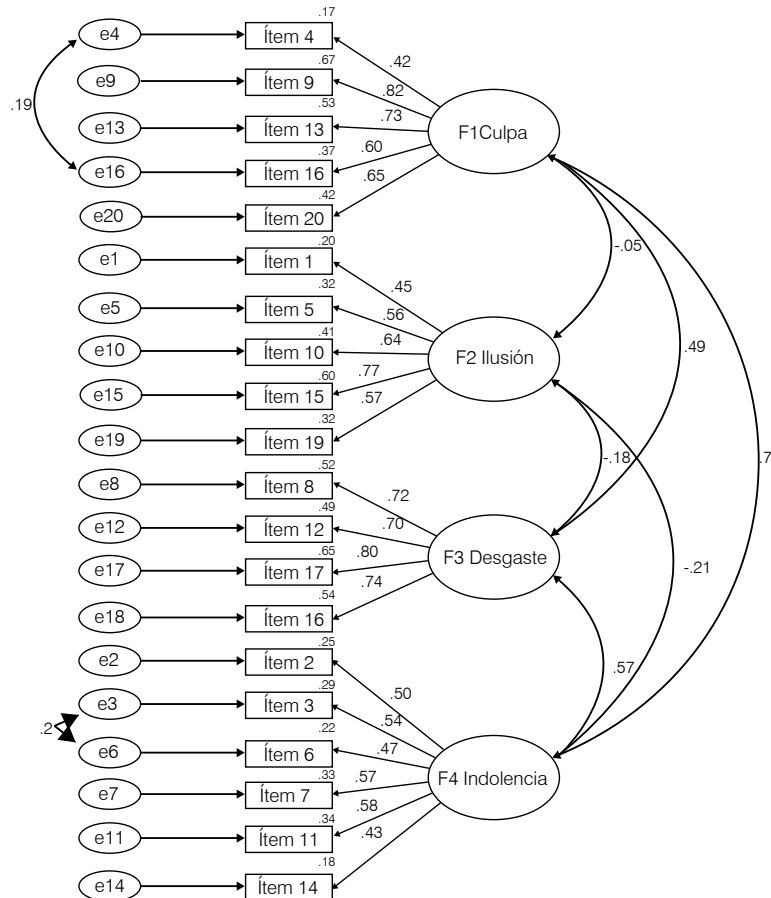
	Extraction	Factor 1	Factor 2	Factor 3	Factor 4	McDonald's ω
Item 3	.422				.647	.740
Item 6	.322				.567	.744
Item 2	.317				.562	.744
Item 11	.314				.512	.742
Item 14	.405				.450	.747
Item 7	.396				.445	.738

Source: Authors' own elaboration.

A confirmatory analysis was carried out using a structural equation model [SEM] (figure 1), which reports factor regression coefficients for each item with positive values and in all cases greater than .40. Besides, it is identified that the illusion factor deviates negatively from

the other factors, corresponding to the form of score determined by the original questionnaire. It should be noted that an analysis of alternative models was carried out, with distributions in three and five factors, finding in the following model the best fitting level.

Figure 1. Confirmatory Model



Source: Authors' own elaboration.

According to the SEM, it is evident that the weights of the variances of each item to the factors shaped by the test are close to those referred to in the

previous factor analysis. Also, optimal goodness-of-fit indices were shown, which allow us to confirm the model obtained (table 4).

Table 4
Goodness of Fit Coefficients of the Model Obtained

	X2	G.L.	X2/G.L.	GFI	AGFI	CFI	TLI	RMSEA
Expected	-	-	≤ 3	≥ .90	≥ .90	≥ .90	≥ .90	≤ .05
Obtained			1.374	.932	.912	.961	.954	.036

Source: Authors' own elaboration.

Discussion

The findings of the present study refer to a constituted four-factor structure, with a high percentage of explained variance, which groups the reagents in the same way as reported by the original studies (Gil-Monte, 2005) and derivatives (Gil-Monte & Zúñiga-Caballero, 2010), with appropriate SEM goodness of fit indicators, which confirm the structure obtained, high reliability indicators, correlations between items and between each item with its subscale, which allows us to refer that the SBI is a valid and reliable scale to be used in the Colombian population working in health, in coherence with the studies of evaluation of psychometric properties and validation of this questionnaire carried out with Mexican doctors (Gil-Monte & Zúñiga-Caballero, 2010), professionals who attend patients with physical disability in Chile (Gil-Monte & Oliveros- Faúndez, 2011), and Italian health professionals (Gil-Monte et al., 2017).

In contrast to the Colombian version carried out with medical-surgical

specialists published by García-Borrero et al. (2022), the work related here reports the same way of grouping items, with similar magnitudes in the contribution of the items to each dimension, some covariances between factors with similar tendencies and analogous internal consistency values, which allows us to affirm that the SBI is useful in the evaluation of the dimensions that make up the Burnout construct (Illusion about Work, Psychic Attrition, Indolence and Guilt), maintaining coherence with the recently agreed conceptual definition (Schaufeli et al., 2020); In addition, compared to the mentioned version, it refers to indicators of adequate internal consistency, although with a measure that overcomes the limitations of Cronbach's α (Ventura-León & Caychó-Rodríguez, 2017; Viladrich et al., 2017).

Although the usefulness of this instrument for the Colombian context is demonstrated, this study has some limitations: the first lies on the sampling was for convenience, and there was a higher proportion of women surveyed.

It is clear that more than half of the sample did not have a steady job, had

less than five years of seniority, and earned less than two smallest monthly wages established by Colombian law. These uncontrolled elements in the sample could eventually introduce biases that might affect the generalization of the identified results and the ability of the instrument to measure Burnout with other populations.

On the other hand, in this and other validation exercises of self-report tests, it would not be possible to directly control extraneous stressors to the strict labor context, such as family economy, chronic diseases, situations related to issues where freedom is compromised, marital problems, among others. Therefore, it is important to apply some extra exclusion criteria that allow a more suitable sampling and, in this way, this affects more precise psychometric indicators.

As future research prospects, it is suggested that new SBI validation studies must join at least other instruments that measure Burnout syndrome, which allows the contrast of the convergent or discriminate validity; additionally, these studies will be conducted with populations other than those typically evaluated, such as the police population (Corredor & Torres, 2013), university students (Caballero et al., 2015), factory workers (Aranda et al, 2013), and administrative sector professionals (Aparicio & Hereira, 2018), among other profiles.

It is then concluded that the Colombian version of the SBI has adequate psychometric properties that outline it as an ideal instrument for the measurement of Burnout in health sector personnel in this country, once the limitations mentioned are overcome through the development of subsequent confirmatory studies.

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