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Article

New Burnout Evaluation Model Based on the *Brief Burnout Questionnaire*: Psychometric Properties for Nursing

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Abstract: Healthcare personnel are considered one of the sectors of workers most exposed to heavier workloads and work stress. One of the consequences associated with its chronic presence is the development of burnout syndrome. Given that, for the evaluation of this syndrome, the context in which they are to be used must be addressed, the purpose of this work was to analyze the psychometric properties, as well as the structure, and to propose a more suitable version for its application to health professionals, and more specifically, nursing, of the Burnout Brief Questionnaire (CBB). The final study sample was made up 1236 working nursing professionals. An exploratory factorial analysis was carried out and a new model was proposed through a confirmatory factorial analysis. Thus, the validation of the CBB questionnaire for nursing healthcare personnel showed an adequate discrimination of the items and a high internal consistency of the scale. With respect to the factorial analysis, four factors were extracted from the revised model. Specifically, these new factors called Job Dissatisfaction, Social Climate, Personal Impact and Motivational Abandonment, showed an adequate index of adjustment. Thus, the Burnout Revised Brief Questionnaire for nursing staff has favorable psychometric properties, and this Burnout model can be applied to all healthcare professionals.

Keywords: burnout; psychometric properties; nursing.

1. Introduction

The number of healthcare workers in Spain increases year after year, as the number of members of the official association testifies, in degrees such as medicine, which in 2015 increased by 1.9%. The number of nurses rose by 3.4% [1] to nearly 300,000 registered nurses according to the latest data from the National Statistics Institute [2]. Furthermore, the role of nursing personnel is more and more important, and their emotional skills and stressful work climate must be taken into account, but not only for them, as there are now studies which analyze it even in students of physiotherapy, for example [3]. Therefore, nurses are gradually facing situations and settings with more pressure and heavier workloads [4], which produce scenarios filled with strain and job stress [5].

According to the Encyclopedia of Mental Health, the burnout syndrome is a type of response to chronic emotional and interpersonal stress factors at work, which is recognized as a serious occupational hazard [6]. The presence of stressors at work maintained over long periods of time can cause the appearance of burnout in workers, especially those who maintain a constant direct care

relationship with the service user, as is the case of healthcare personnel [7], although this syndrome may also be discussed in other areas [8-10].

The presence of the burnout syndrome in workers leads to physical, occupational and psychological consequences, in particular, cardiovascular, pain, depressive symptoms, sleep problems, alcohol abuse, absenteeism and job dissatisfaction [11]. Its appearance has also been associated with a multitude of individual and psychosocial variables [12, 13].

One of the behaviors associated with this syndrome is demotivation [14, 5]. Specifically, the deterioration of professional motivation, which affects almost half of nursing personnel [15], is a process derived from the perception of absence of reward, and culminates in the individual's depersonalization [16]. Motivation, which refers to the choice of ends and means, depends in large part on the beliefs and values of the individual at the time a situation is evaluated. Motivation generates feelings that drive to action on the job, while demotivation created limits and promotes expressions of displeasure and distress [17]. According to the study by Achour, Munokaran, Barker, & Soetanto [18], lack of recognition and motivation are two challenges which healthcare personnel must face, as heavier workloads are assigned and measurements of performance become stricter. This directly affects their performance and job satisfaction [19]. So nursing professionals with the most intrinsic motivation (that is, motivated by their own enjoyment of performing the task for humanitarian reasons) and extrinsic (associated with economic characteristics and schedule flexibility) show higher levels of job satisfaction and less burnout [20].

Job satisfaction specifically refers to the enjoyment individuals find in their job [21]. Lack of satisfaction in healthcare jobs has been associated with the presence of burnout in workers, and also with the intention of quitting the profession and diminishing quality of the care given [22, 23]. According to Farnaz et al. [24], job satisfaction in nursing is associated mainly with environmental factors in detriment to sociodemographic and individual factors, so improving satisfaction in job positions involves enriching the characteristics of the organizations they work in.

The workplaces with the highest quality, with regard to both setting and structure, are associated with more wellbeing and lower levels of burnout among healthcare personnel [25, 26]. Therefore, it is of vital importance that healthy work environments, where the psychological health of nursing staff is given attention, be promoted [27]. And in turn, study of the prevention, treatment and measurement of severe widespread problems in this population, such as the burnout syndrome, must continue to progress [28].

The most widely used instrument for the evaluation of burnout is the *Maslach Burnout Inventory* (MBI) [29]. This instrument is designed for evaluating professionals, such as nurses, who perform their job interacting with the users of their service [30], and has been extensively described and validated internationally [31]. Its manual describes burnout as occurring at high levels of emotional exhaustion and depersonalization, in combination with low scores in personal accomplishment. However, other studies [32] make use of alternative proposals to determine the presence of burnout, such as the definition by Poncet et al. [33], who estimated that this syndrome is present among professionals with a cumulative score over -9 on the MBI.

Although there are studies confirming the Maslach Burnout Inventory questionnaire's three dimensions, [34-36], other studies have found factor structures based on two [37, 38] and five dimensions [39-40]. Densten [39], after confirmatory analysis of the instrument, found that the structure based on five scales was more strongly supported than the model of three, or even four. Thus, while the depersonalization factor was maintained in this new division of factors, emotional exhaustion was divided into "somatic strain" and "psychological strain", while personal accomplishment was broken down into "self-accomplishment" and "working with others".

Another alternative instrument to the MBI for evaluating burnout is the *Cuestionario Breve de Burnout [Brief Burnout Questionnaire]* (CBB) [41]. The CBB is comprised of 21 items which evaluate not only the syndrome itself, but also its antecedents and consequences. That is, it understands burnout as a process [42]. The instrument was validated in teaching professionals, showing adequate convergent validity with the MBI on the total burnout scale (but not, however, on all the syndrome factors), so the authors recommended its use for evaluating some elements present in the burnout

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process (specifically, antecedents, burnout and consequences), but not for direct evaluation of its specific components. Few studies have used this questionnaire [43-45], as shown in the review by Ahola, Toppinen-Tanner, & Seppänen [46], who indicated that they were even unaware of the existence of the questionnaire's validation. It has also been adapted for use with housewives (CUBAC) [47], where a three-factor structure similar to the one found in the original questionnaire was found. However, this instrument has received some criticism. For example, in the validation done in a sample of teachers in Aragon Province, Spain [48], no significant differences were found on some of the scales between men and women, which might be due to the inappropriateness of the items in showing the behavior associated on each scale. Its results have also shown low reliability and the conclusions that its use has generated little validity, mainly because of its factor division [49].

According to Domínguez-Lara [50], the multifactor internal structure of burnout evaluation instruments must be analyzed, considering the context where they are going to be used, since, even though the construct may have a good theoretical basis, the configuration of its structure may vary when used in real environments. Therefore, the purpose of this study is to show that the CBB is a valid model for different cultures and societies, as this scale has awakened great interest in recent years. In addition to analyzing its psychometric properties and structure, it proposes the best version or model for its application to healthcare professionals, and nurses in particular.

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2. Materials and Methods

2.1. Participants

The sample was made up of 1352 nurses selected at random from several health centers, and therefore, actively employed at the time data were collected. Subjects who had not completed the questionnaire or who had given random answers (detected by control questions) were eliminated from the study. The final sample consisted of a total of 1236 participants, of whom 69.3% (*n*=857) were working under temporary contracts and the other 30.7% (*n*=379) had permanent contracts.

The mean participant age was 31.50 years (*SD*=6.18), in a range of 21 to 57. Of the whole sample, 84.5% (*n*=1044) were women and 15.5% (*n*=192) men, with a mean age of 31.65 years (*SD*=6.23) and 30.71 years (*SD*=6.17), respectively. Their marital status was 55% (*n*=680) single, 42.1% (*n*=520) married or in a stable relationship, 2.8% (*n*=34) divorced or separated, and 0.2% (*n*=2) widowed. In addition, 68.9% (*n*=852) of the participants had no children, 14.5% (*n*=179) had one child, 13.2% (*n*=163) of the nurses surveyed had two children and the remaining 3.3% (*n*=41) had three or more.

Their distribution by area of work was 32% (*n*=396) as staff nurse and 21.9% (*n*=271) on emergency teams, while 11.4% (*n*=141) were working in the ICU, 10.7% (*n*=132) in surgery, 2.3% (*n*=28) were working in outpatient care, and 4% (*n*=50) in the mental health unit. The remaining 17.6% (*n*=218) were working in other areas.

2.2. Instruments

An ad hoc questionnaire was prepared to collect sociodemographic data (age, sex, marital status and degree), and to compile information on their profession and work experience: years of experience, employment situation (permanent or temporary), work shifts (rotating, 12 hours or more, nights only, and morning/afternoon), number of users attended to in a workday.

The *Cuestionario Breve de Burnout* (CBB) [41] was used to evaluate this syndrome in the professionals. This instrument consists of 21 items in three blocks corresponding to antecedents of burnout, its elements and consequences. Even though the purpose of the questionnaire is the overall evaluation of the professional burnout process, it includes factors proposed in the Maslach and Jackson model [29] and components which precede and support it. The answer format is a five-point Likert-type scale. Items 2, 4, 8, 9 and 16 must be inverted and recoded after inversion to find the corresponding overall subscale scores.

2.3. Procedure

Before the data were collected, compliance with participant information standards, confidentiality and ethics in data processing was guaranteed. Questionnaires were implemented on a Web platform which enabled participants to fill them out online. A series of control questions were included to detect chance or incongruent answers, and any such cases were discarded from the study sample. The study was approved by the Bioethics Committee of the University of Almería (Ref:UALBIO2017/011).

2.4. Data analysis

The descriptive and confirmatory data analyses were done following the steps by Pérez-Fuentes, Molero, Martos, Barragán, Gázquez and Sánchez-Marchán [51], in addition, validation was performed in two stages following the steps by Álvarez-García, Barreiro-Collazo, Núñez & Dobarro [52]. In the first stage, it was intended to study the structure of the CBB. To approach this objective, the sample was first randomly divided into two independent homogeneous subsamples. The first (n=605) was used as a calibration sample for confirmatory factor analyses (AFC) of the burnout model proposed. Then Confirmatory Factor Analysis was done for the model proposed taking the following fit indices as measures: $\chi 2/gl$, Comparative Fit Index (CFI), Tucker-Lewis index (TLI), Root Mean Square Error of Approximation (RMSEA) with the Confidence Interval (CI) at 90%. The index $\chi 2/gl$ was used considering values below five acceptable [53], CFI and IFI over or near .95, and RMSEA below or very near .06 [54]. As a general rule, good fit of the model would be found when: ratio 2/GL ≤ 3; GFI, AGFI and TLI > .90; CFI > .95; RMSEA ≤ .05. The advisable respecifications were made to the model proposed, which showed good fit indices, considering theoretical and statistical criteria (modification indices, estimation errors, standardized errors of measurement). The Akaike Information criterion [55] was used for model selection based on the second subsample (n=635), which was used as the validation sample to validate the respecified model. Cronbach's alpha [56] and split halves were used for the reliability analysis of the new scale.

In the second stage, an analysis was done to support the invariant factor structure proposed across type of contract (permanent or temporary) and gender (male/female). First, both subsamples were checked to see the goodness of fit of these structures (Models M0a-Permanent-Male and Model M0b-Temporary-Female). The four resulting nested models were evaluated: a) Model 1. Both subsamples were considered simultaneously with free parameter estimation. b) Model 2. Metric invariance was demonstrated. c) Model 3). Scalar invariance was demonstrated. d) Model 4). Strict invariance. No consensus criterion to determine the criteria to be used to evaluate the difference in fit of the nested models [57]. This study used the ΔCFI to evaluate its fit. The ΔCFI interprets the model as fully invariant if the value found is below .01 [58]. The analyses were performed using the SPSS version 23.0 statistical package for Windows and the AMOS 22 program.

3. Results

3.1. Preliminary analyses

In the first place, the data show that the CBB items have a normal distribution according to the criterion of Finney and DiStefano [59] who give 2 and 7 as the maximums permissible for skew and kurtosis. In our study, maximums were 1.24 and 2.15, respectively. In the exploratory factor analysis, principal component extraction was used with direct Oblimin rotation (KMO= .85), which allows correlation between factors. Based on the exploratory analysis and the various previous studies on validation of the questionnaire itself, other versions, and previous research, a new model is proposed.

3.2. Exploratory factor analysis of the original CBB model

The principal component analysis (method chosen since the determinant of p=.086 showed intercorrelation of the variables, required for this method) revealed the existence of two components with eigenvalues over 1 in the first block, that is, the general Antecedents scale. Thus, the Scree Test indicated the advisability of rotation with two factors with eigenvalues of 3.56 and 1.37 respectively, since they are clearly distanced from the third with a score of .86.

After factor analysis, the items with factor saturations over .40 were selected from the Direct Oblimin Rotation matrix of rotated components. As seen in Table 1, Factor 1 corresponds to the items that make up the scale's Organization factor. Factor 1 is comprised of four items, all with loadings over .60, which explain 38.18% of the variance. Factor 2 is made up of five items and forms part of the task component, and explained 15.22% of the variance.

Table 1. Factor structure, communalities (h2), eigenvalues, Cronbach's alpha and percentage of explained variance (n=1236). Extraction method: Principal components analysis

	F1	F2	h^2
Item2	.56	.63	.53
Item4	.65		.42
Item6		.79	.63
Item8	.81		.66
Item9	.79		.62
Item10		.55	.31
Item14		.68	.48
Item16	.78		.63
Item20		.80	.64
Eigenvalue	3.56	1.37	
Percentage explained variance	39.51	15.22	54.73
Kaiser-Meyer-Olkin		.85	
Barlett's sphericity	$\chi^2_{(36)}$=3019.35, p<.000		
Cronbach's Alpha	.75	.73	.79

Note. The items are listed in decreasing order by saturation.
Visualization coefficient >.40. F1: Organization; F2: Task.

In the second block of the burnout syndrome scale, the principal component analysis (Determinant p=.124 shows intercorrelation of the variables) revealed the existence of one component with an eigenvalue over 1. As the theoretical structure of the construct was three factors, we used principal axis factoring to force the presence of three factors with Varimax Rotation. The Scree Test shows the adequacy of rotation with one factor with a value of 3.38, and the following two are scarcely below 1, with values of .98 and .96, although they are at a distance from the quartile score of .84.

Table 2. Factor structure, communalities (h^2) eigenvalues, Cronbach's alpha and percentage of explained variance (n=1236). Extraction method: Principal components analysis

	F1	F2	F3	h^2
Item 1	.76			.68
Item 3			.72	.58
Item 5		.49		.27
Item 7	.60			.48
Item 11			.44	.37
Item 12		.50		.33
Item 15	.72			.66
Item 18		.28		.11
Item 19		.30		.17
Eigenvalue	3.38	.98	.96	
Percentage explained variance	31.93	4.99	3.74	40.66
Kaiser-Meyer-Olkin			.84	
Barlett's sphericity		$\chi^2_{(36)}$=2569.33, p<.000		
Cronbach's Alpha	.81	.49	.57	.76

Note. The items are listed order by saturation in decreasing.
Visualization coefficient >.40. F1: Emotional Exhaustion; F2: Lack of Accomplishment; F3: Depersonalization.

After the factor analysis, we selected the items with the highest factor saturations from the matrix of rotated components (Varimax Rotation). Table 2 shows how Factor 1 corresponds to the items that

make up the scale's Emotional Exhaustion factor. This Factor 1 is comprised of three items, all of them with loadings over .60, and explaining 31.93% of the variance. The original questionnaire did not include Item 3 in this factor, which saturated highest in Factor 3. Factor 2 is comprised of four items which form the Lack of Accomplishment component, explaining 4.99% of the variance. Item 18 is included in this Factor 2 but not in the original version where it was in Factor 3. Finally, it should be mentioned with respect to Factor 3, which is formed by the Depersonalization component, that it is composed of two items, and that Item 3 is in this factor, unlike the original questionnaire.

The third part of the scale corresponds to the consequences of burnout, analysis of principal components revealed the existence of one component with eigenvalues over 1. It is comprised of three items (Items 13, 17 and 21), all with loadings over .75 (.79, .79 and .76, respectively), which explain 60.53% of the variance (KMO = .66; $\chi^2_{(3)}$=560.17, p<.000; Cronbach's alpha = .67).

3.3. Exploratory Factor Analysis of the revised CBB model (CBB-R)

Principal components analysis (method chosen because the Determinant of p=.001 shows intercorrelation of the variables, required by this method) revealed the existence of four components with eigenvalues over 1. The scree plot recommends rotating with four factors, with eigenvalues of 3.56 and 1.37, respectively, as they are at a clear distance from the third with a score of .86.

Table 3. Factor structure, communalities (h^2) eigenvalues, Cronbach's alpha and percentage of explained variance (n=1236). Extraction method: Principal components analysis

	F1	F2	F3	F4	h^2
Item 1	.56	.41	**.65**		.61
Item 2	**.59**	.58			.55
Item 3			**.62**	.45	.49
Item 4		**.65**			.43
Item 5	.43			**.57**	.41
Item 6	**.70**			.56	.64
Item 7	.44		**.62**		.51
Item 8		**.80**			.66
Item 9		**.78**			.62
Item 10				**.61**	.38
Item 11			.40	**.67**	.51
Item 12	.44			**.62**	.47
Item 13			**.78**		.62
Item 14	**.56**		.41		.40
Item 15	.56		**.70**		.66
Item 16		**.77**	.41		.64
Item 17			**.66**		.47
Item 18				**.53**	.30
Item 19	**.66**				.44
Item 20	**.76**				.64
Item 21			**.62**		.46
Eigenvalue	6.67	1.76	1.39	1.06	
Percentage explained variance	31.77	8.41	6.64	5.05	51.86
Kaiser-Meyer-Olkin			.92		
Barlett's sphericity			$\chi^2_{(210)}$=8449.54, p<.000		
Cronbach's Alpha	.74	.75	.82	.59	.88

Note. The items are listed in decreasing order by saturation.
Visualization coefficient >.40. F1: Job Dissatisfaction; F2: Social Climate; F3: Personal Impact; F4: Motivational exhaustion.

After factor analysis, we selected the items with factor saturations over .40 from the Direct Oblimin Rotation matrix of rotated components. As seen in Table 1, Factor 1 corresponds to the items that make up the scale's Job Dissatisfaction factor. This Factor 1 is comprised of five items, all of them with loadings over .55, and explaining 31.77% of the variance. Factor 2 has four items that form the

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Social Climate component, explaining 8.41% of the variance. Factor 3 has seven items which make up Personal Impact component and explain 5.05% of the variance. Finally, Factor 4 (five items) is the factor related to Motivational Exhaustion.

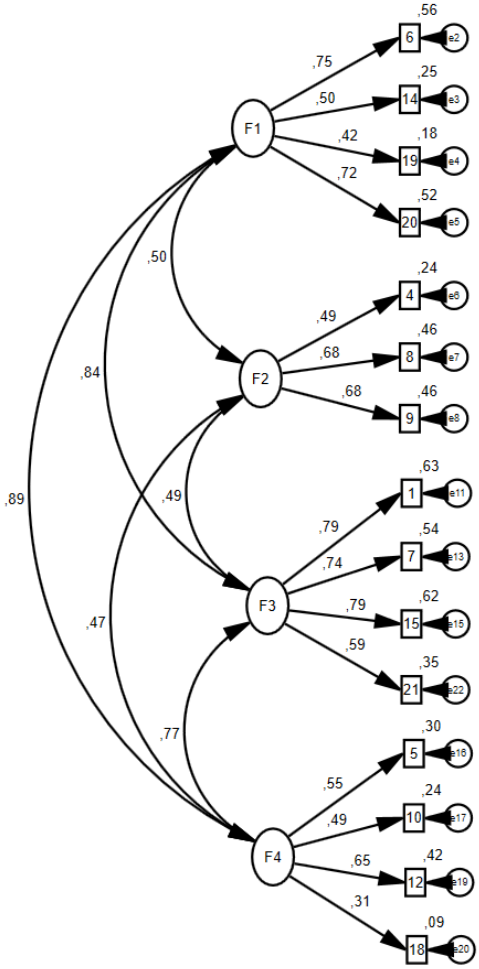
3.4. Confirmatory factor analysis of the CBB model and the CBB-R model

Table 4. Fit indices for the models proposed (Calibration sample; *n*=605)

						RMSEA		
							CI90%	
Model	χ^2 (*df*)	χ^2/*df*	CFI	TLI	RMR	Est.	Bel.	Abv.
Original CBB Model	931.446 (179)	5.204	.822	.791	.042	.083	.078	.089
Unidimensional CBB model	1305.043 (189)	6.904	.735	.706	.059	.099	.094	.104
CBB model proposed	664.676 (183)	3.632	.886	.869	.044	.066	.061	.071
CBB-R model proposed	176.497 (84)	2.101	.965	.956	.027	.043	.034	.052

Note. CFI = Comparative fit index; TLI = Tucker-Lewis index; RMSEA = Root Mean Square Error of Approximation; IC = Confidence Interval ; *df* = Degrees of Freedom; Est. = Estimation; Bel. = Below; Abv. = Above.

Figure 1. CBB-R model proposed (validation sample *n*=635)



Note: F1: Job dissatisfaction; F2: Social Climate;
F3: Personal Impact; F4: Motivational Exhaustion

Table 4 analyzes the fit of the various models of the questionnaire by the original CBB model, the unidimensional CBB model, the four-factor CBB model proposed and the revision of that model first proposed (CBB-R). The original model and the unidimensional model show values which are not very adequate. The four-factor CBB model proposed, which corresponds to what was found in the exploratory analysis, is better, but although it showed good fit indices, the advisable

respecifications were made considering theoretical and statistical criteria (modification indices, errors of estimation, standardized errors of measurement) which led to elimination of Items 2, 16, 3, 13, 17 and 11. The revised model showed much better fit with the calibration sample. The difference between the AIC Default model value = 248.497 and the AIC Saturated model = 240.000 is also very low, showing that this is probably the best of the models according to the Akaike model selection criteria.

Fit indices for the CBB-R model proposed with the validation sample (n=635) figure 1. Confirmatory Factor Analysis for the model proposed taking the following fit indices as measures: χ^2/gl= 2.241, CFI= .961, TLI= .951, RMSEA= .044 (.036-.053).

The reliability of the model was analyzed using the Cronbach's alpha, where the the α=.89 for the total sample, for Factor 1 (Job Dissatisfaction), comprised of four items, the α=.697, for Factor 2 (Social Climate), made up of three items, the α=.666, for Factor 3 (Personal Impact), made up of four items, the α=.808, and finally, for Factor 4 (Motivational Exhaustion), comprised of four items, the α=.529. Furthermore, the data found by split halves also showed both equal-length (Spearman-Brown coefficient=.818) and unequal-length (Spearman-Brown coefficient =.819) consistency of the scales.

Table 5. Multigroup analysis of variance by type of contract (permanent/temporary) and by gender (male/female)

Model	χ^2	gl	χ^2 / gl	$\Delta\chi^2$	CFI	ΔCFI	IFI	RMSEA (IC 90%)
M0a (permanent)	376.265 (p=.000)	168	2.239		.960		.961	.032 (.027-.036)
M0b (temporary)	417.761 (p=.000)	179	2.333		.955		.955	.033 (.029-.037)
M1 (base model set)	505.309 (p=.000)	194	2.604		.941		.941	.036 (.032-.040)
M2 (FS)	544.696 (p=.000)	209	2.606	39.387	.936	.005	.936	.036 (.032-.040)
M3 (FS + Int)	376.265 (p=.000)	168	2.239	129.044	.960	.024	.961	.032 (.027-.036)
M4 (FS + Int + Err)	376.265 (p=.000)	168	2.239	129.044	.960	.024	.961	.032 (.027-.036)
M0a (male)	383.819 (p=.000)	168	2.284		.959		.960	.032 (.028-.037)
M0b (female)	407.567 (p=.000)	179	2.276		.957		.957	.032 (.028-.036)
M1 (base model set)	446.771 (p=.000)	194	2.302		.952		.953	.032 (.029-.036)
M2 (FS)	474.727 (p=.000)	209	2.271	27.956	.950	.002	.950	.032 (.028-.036)
M3 (FS + Int)	383.819 (p=.000)	168	2.284	62.952	.959	.009	.960	.032 (.028-.037)
M4 (FS + Int + Err)	376.265 (p=.000)	168	2.284	62.952	.959	.009	.960	.032 (.028-.037)

Table 5 shows the values for all six models. It may be seen how the ΔCFI is over .01 for Model 3 and 4, accepting the configural and metric invariance. Specifically, the ΔCFI between Model 1 (configural and metric base model) and the rest of the Models 3 and 4 is .024, so scalar and strict invariance cannot be accepted. In the analysis of variance by gender, in all cases the ΔCFI is under .01, so the configural, metric, scalar and strict invariances are accepted.

4. Discussion

The validation of the CBB questionnaire for healthcare personnel in nursing shows adequate discrimination of items. The Cronbach's alpha for this scale was .089, which shows its high internal consistency.

With respect to the factor analysis, four factors were extracted from the revised model, which differed from the original structure of the *Cuestionario Breve de Burnout* [Brief Burnout Questionnaire] [41]. This model was proven to generate better fit of the data than the original. The percentage explained by this model was 51.86%, emphasizing the first factor, where all the items loaded over .55 and explained 31.77% of the variance. This factor, called *Job Dissatisfaction,* clusters indicators in two dimensions, burnout factors and burnout syndrome. This factor compiles items that refer to the balance between job expectations and reality, and how much enjoyment the individual finds in the job [21]. This coincides with the proposal made by Moreno et al. [35], in their questionnaire for evaluating professional burnout in doctors, where a factor referring to the loss of job expectations was included. Similarly, the second factor, made up of four items, groups indicators corresponding to the relationship the worker establishes with fellow workers and superiors at work. This factor, which is called *Social Climate*, responds to a cluster which may be due to the importance in developing burnout of chronic stressful interpersonal situations in the workplace [6]. The third factor grouped seven items, which in the original questionnaire were in the Burnout Syndrome scale, except for one which was on the Consequences scale. The cluster of these items is called the *Personal Impact* factor and refers to the direct consequences which exhaustion has on different areas of the life of the employee.

Finally, the fourth factor, called *Motivational Exhaustion*, combines five items which in the original model were part of the Burnout Syndrome scale. The questions which are grouped under this factor of Motivational Exhaustion refer to the absence of job growth and stimulation for development in the job position. The aspects which promote work demotivation, generate distress [17], and are one of the challenges most frequently facing healthcare personnel [18].

Although this four-factor model showed adequate fit, after making the corresponding respecifications according to theoretical and statistical criteria, Items 2, 16, 3, 13, 17 and 11 were eliminated, so all 21 items in the original questionnaire were not retained. The items which were finally kept in each of the factors in the *Brief Burnout Questionnaire Revised* were: Items 6, 14, 19 and 20 for Job Dissatisfaction; 4, 8 and 9 in the Social Climate factor; 1, 7, 15 and 21 in Personal Impact, and for the Motivational Exhaustion factor, the items that made up the factor were 5, 10, 12 and 18.

The model fit improved considerably this way, and also showed consistency in the validation sample. Configural and metric invariance of the model across the type of job (permanent/temporary) is also assumed, and invariance in all cases (configural, metric, scalar and strict) across gender. Given the divergence found when clustering items, inquiry into the adequacy of the structure reported by the CBB-R for nursing personnel will have to be continued. The multifactorial construct of burnout shown here, which differs from the one reported by the authors of the original study, shows the need for further study of the internal structure of the evaluation instruments in this construct, in the population studied [50]. In the process of adapting and validating instruments for certain populations, it must be known whether the factor structure coincides or not with the terms of the original version, as the job characteristics of each sample partly moderate the conditions where burnout appears. The model proposed also includes the analysis of all the burnout risk and protection factors now known as found in the theoretical review.

5. Conclusions

The *Cuestionario Breve de Burnout Revisado para personal sanitario de enfermería* [Brief Burnout Questionnaire Revised for healthcare personnel in nursing] has favorable psychometric properties. The internal consistency of both the total scale and of each of the factors is adequate, and therefore, the general fit is acceptable. However, it is recommended that goodness and fit of the model continue

to be analyzed to test the psychometric properties of the instrument in other groups, since this model of burnout can be applied to all care professionals.

This new evaluation model based on the CBB questionnaire adapted as an instrument for evaluation of the syndrome in healthcare personnel, intends to approach even closer to knowledge of burnout, exploring the different facets which comprise it. Thus, the purpose of validating the instrument was to approach burnout's present reality. As a syndrome linked to the work environment of individuals, burnout will continue to evolve with it, accumulating new factors workers must cope with and may also lead to burnout.

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