

Coping strategies and psychosocial factors at work of dietitians/nutritionists: a multivariate analysis approach

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ABSTRACT

Background/Objective: Dietitians and nutritionists, like many healthcare professionals, frequently experience stress, which can be influenced by coping strategies (BriefCOPE) and the psychosocial work environment (COPSOQ-II) and their impact on work ability and stress levels (WAI). The main objective of this short paper is to examine how BriefCOPE and COPSOQ-II scales can be used to study coping with work-related stress among dietitians and nutritionists (n=301), with a focus on exploring the relationship among these scales and WAI.

Methods: BriefCOPE is a self-report measure of coping strategies, and it evaluates various coping strategies, including problem-solving, positive reframing, and avoidance coping. COPSOQ-II is a questionnaire that assesses various psychosocial factors related to the work environment, including job demands, job control, social support, and rewards. WAI is a tool used to assess an individual's work ability, considering their health status, physical and mental demands, and work-related resources. BriefCOPE and COPSOQ-II multivariate outliers were removed based on Mahalanobis distance. The sociodemographic characteristics, the BriefCOPE (n=285) and COPSOQ-II (n=233) scales association with WAI scores were analysed through Chi-Square, Kruskal-Wallis and one-way Analysis of Variance (ANOVA) tests. Exploratory (EFA) and confirmatory (CFA) factor analyses were conducted for both scales. Data was analysed using the R software.

Results: BriefCOPE and COPSOQ-II dimensions were obtained, and the WAI scores was reduced to three levels: "Poor/Moderate" (n=69; 22.9%), "Good" (n=158; 52.5%), and "Excellent" (n=74; 24.6%). About BriefCOPE and COPSOQ-II dimensions, association with WAI scores revealed 8 and 22 dimensions, respectively, with statistically different distribution among WAI categories. In exploratory factor analysis, for BriefCOPE scale the best model selected was constituted by 4 factors and explained 57% of variance, and for COPSOQ-II scale the best model was constituted by 7 factors and explained 64% of variance. In confirmatory factor analysis, the best models selected for each scale demonstrated better fit values in comparison with the theoretical models.

Conclusions: Most of the BriefCOPE and COPSOQ-II dimensions revealed statistically different distribution among WAI categories for the dietitians and nutritionists group. The excellent work capacity is related to the situation of "I almost always do this" for the dimensions of "Active coping", and "Positive reinterpretation" for BriefCOPE, and with the situations of "Never/almost never" or "Rarely" for the dimensions of "Role conflicts", "Work/Family conflict", "Stress", "Sleeping troubles", "Depressive symptoms", and "Bullying" for COPSOQ-II. This indicates that individuals with excellent work capacity frequently experienced active coping and positive reinterpretation, and never or rarely experienced stress, sleeping issues, burnout, and depressive symptoms. For both scales, EFA presented different factor structures when compared to the theoretical ones. Our data do not fit the theoretical models of BriefCOPE and COPSOQ-II scales, but present good results for the models proposed by EFA.

Introduction:

Stress is a common issue in the healthcare industry, and dietitians and nutritionists are no exception. Coping strategies and the psychosocial work environment are crucial factors that may affect the work ability and stress levels of healthcare professionals. To assess these factors, three scales will be used in this short paper: a condensed edition of the Coping Orientation to Problems Experienced (BriefCOPE), the medium version of the Copenhagen Psychological Questionnaire (COPSOQ-II), and Work Ability Index (WAI).

Keywords:

BriefCOPE, Coping, COPSOQ-II, Dietitians/Nutritionists, Work Ability Index (WAI)

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Supplementary material:

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Conflict of interest:

The authors declare no conflict of interests

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BriefCOPE is a self-report measure of coping strategies that has been used in various healthcare studies. It evaluates various coping strategies, including problem-solving, positive reframing, and avoidance coping. COPSOQ-II is a questionnaire that assesses various psychosocial factors related to the work environment, including job demands, job control, social support, and rewards. The WAI, on the other hand, is a tool used to assess an individual's work ability, considering their health status, physical and mental demands, and work-related resources. Both WAI and COPSOQ-II scales have a Portuguese and a Brazilian version [1,2,4,5], while BriefCOPE [3] has a version adapted to both countries. All these versions have been validated on previous studies [1-5].

There are past studies where these scales were used to evaluate coping strategies, psychosocial work environment and work ability of health professionals in general, such as La Torre, et al. (2021) who indicated that the WAI values depended on the occupation that the health professional practices [6], while Gomes, et al. (2016), whose study used the Portuguese versions of WAI and COPSOQ-II, verified that work ability might be influenced by the sex of an individual and burnout and that sociodemographic factors such as age and sex were influenced by health psychosocial factors [7]. However, no studies were found where these scales were used on either dietitians or nutritionists.

In this short paper, the focus will be on the study of coping with stress at work, using the BriefCOPE and COPSOQ-II scales, for health professionals who are either dietitians or nutritionists, with the main objective of relating these scales to WAI.

Methods:

Study design

In this study, the data analysed was from Ramos work [8] and the study design was a cross-sectional study. The sample method was a non-random convenience, and the data collection took place between the 10th of January and the 18th of July 2012. The population in study was constituted in total by 2960 subjects, with 31% (n=909) being health professionals and 69% (n=2051) being non health professionals. To achieve the goals of our study only health professionals dietitians or nutritionists (n=301 (10.2%)) were selected from the original dataset. Further details about the study design can be found in Ramos work [8].

Measurement instruments

The dataset used in this work contains sociodemographic variables, like "Sex", "Age", "Qualifications" variables, the items that constitute each dimension in BriefCOPE and COPSOQ-II scales and a WAI score to each individual. To evaluate the convergent and discriminant validity and therefore the construct validity of BriefCOPE and COPSOQ-II Cronbach's alpha values were calculated.

Statistical analysis

Initially, the dimensions for both BriefCOPE and COPSOQ-II scales were obtained according to Tables 4.3 and 4.4 from Ramos work [8]. First, an exploratory analysis for all variables was achieved. The WAI scores, previously divided into four levels, were reduced to three levels: "Poor/Moderate", "Good", and "Excellent". This step was performed due to sample size since "Poor" level of WAI only had 4 observations, which is a low number comparing to the other levels ("Moderate", "Good" and "Excellent" had, respectively, a total of 65, 158 and 74 observations). In BriefCOPE and COPSOQ-II scales, since incomplete data existed, our decision was to remove these cases. Also, multivariate outliers were removed after their detection through Mahalanobis distance, calculated by Chi-Square 0.975 quantile, for BriefCOPE and COPSOQ-II, respectively. Sociodemographic characteristics' association with WAI scores were analysed through Chi-Square analysis and Fisher's exact tests for categorical variables and through Kruskal-Wallis test for quantitative variables. Associations among WAI scores and BriefCOPE and COPSOQ-II scales were performed through one-way ANOVA and Kruskal-Wallis test. Assumptions of normality (Shapiro-Wilk test) and of homogeneity of variances (Levene test) were evaluated. Also, effect sizes were calculated based on eta squared on the Kruskal-Wallis test (between 0.01-0.06 (small effect); 0.07-0.13 (moderate effect); and ≥ 0.14 (large effect)). After, exploratory factor analyses (EFA) were conducted for BriefCOPE and COPSOQ-II scales. Factors were extracted using principal components analysis followed by factors rotation methods varimax or direct oblimin. Before the analysis the assumptions were evaluated by Bartlett's test and Kaiser-Meyer-Olkin (KMO) test. Finally, confirmatory factor analyses (CFA) were conducted for both scales to the theoretical model defined in Ramos study [8] and to the best model chosen in exploratory factor analysis. Multivariate normality assumption was evaluated by Mardia test and diagonally weighted least squares (DWLS) estimator was applied in CFA. To see if the theoretical and best models were significantly different, an ANOVA was performed. In this work, data was analysed using the R software (version 4.2.0), using R packages: car (v.3.1-1), corpcor (v.1.6.10), dplyr (v.1.0.10), forcats (v.0.5.2), foreign (v.0.8-82), ggplot2 (v.3.3.6), GPArotation (v.2022.10-2), haven (v.2.5.1), lavaan (v.0.6-

12), MASS (v.7.3-58.1), MVN (v.5.9), psych (v.2.2.9), rstatix (v.0.7.2), and tidySEM (v.0.2.3). Statistical significance was considered for P-values lower than 0.05.

Results:

Sociodemographic characterization

A total of 301 dietitians/nutritionists have replied to the questionnaire from the study performed by Ramos [8]. The sociodemographic characterization is presented at the Table 1 below, along with the distributions among WAI levels and respective statistical results. For “Marital status Rec” and “Qualifications” variables Chi-square statistical results are described, even though the test assumptions were not fulfilled. Fisher’s exact test was performed, although only the p-value was obtained. Since the conclusion of both tests was identical, we decided to present the results of Chi-square test.

Table 1- Sociodemographic characterization and distribution among WAI scores with statistical result.

Categorical variables	Total n (%)	WAI (n (%))			Statistical results
		Poor/Moderate n=69(22.9)	Good n=158(52.5)	Excellent n=74(24.6)	
Sex					
Female	241 (80.1)	59 (24.5)	125 (51.9)	57 (23.6)	$\chi^2(2) = 1.80$ p = 0.407
Male	60 (19.9)	10 (16.7)	33 (55.0)	17 (28.3)	
Marital status					
Single	173 (57.5)	38 (21.9)	93 (53.8)	42 (24.3)	$\chi^2(6) = 0.84$ p = 0.991
Married	84 (27.9)	21 (25.0)	41 (48.8)	22 (26.2)	
Union	34 (11.3)	8 (23.5)	18 (52.9)	8 (23.5)	
Divorced	10 (3.3)	2 (20.0)	6 (60.0)	2 (20.0)	
Marital status Rec					
Single	173 (57.5)	38 (21.9)	93 (53.8)	42 (24.3)	$\chi^2(4) = 0.67$ p = 0.955
Married/Union	118 (39.2)	29 (24.6)	59 (50.0)	30 (25.4)	
Widowed/separated/divorced	10 (3.3)	2 (20.0)	6 (60.0)	2 (20.0)	
Qualifications					
High school/Bachelor	11 (3.7)	4 (36.4)	7 (63.6)	0 (0.0)	$\chi^2(4) = 5.58$ p = 0.233
Graduate degree	237 (78.7)	55 (23.2)	125 (52.7)	57 (24.1)	
Master or Doctoral degrees	53 (17.6)	10 (18.9)	26 (49.1)	17 (32.0)	
Categorized age					
[18-25]	76 (25.3)	14 (18.4)	47 (61.9)	15 (19.7)	$\chi^2(6) = 4.29$ p = 0.638
[25-35]	174 (57.8)	43 (24.7)	84 (48.3)	47 (27.0)	
[35-45]	25 (8.3)	6 (24.0)	14 (56.0)	5 (20.0)	
>45	26 (8.6)	6 (23.1)	13 (50.0)	7 (26.9)	
Categorized working years					
[0;5]	143 (47.5)	27 (18.9)	75 (52.4)	41 (28.7)	$\chi^2(6) = 5.91$ p = 0.433
]5;10]	90 (29.9)	24 (26.7)	49 (54.4)	17 (18.9)	
]10;20]	37 (12.3)	12 (32.4)	17 (45.9)	8 (21.6)	
>20	31 (10.3)	6 (19.4)	17 (54.8)	8 (25.8)	
Quantitative variables					
	Total (Mean±SD)	Poor/Moderate	Good	Excellent	Statistical results
Age	30.59±7.85	31.10±7.90	30.25±7.85	30.82±7.88	$\chi^2(2) = 2.09$ p = 0.351
Working years	8.22±7.86	8.88±7.94	7.98±7.83	8.12±7.93	$\chi^2(2) = 2.43$ p = 0.297

SD = standard deviation; χ^2 = Chi-square or Kruskal–Wallis test for categorical and quantitative variables, respectively; p = P-value.

During BriefCOPE and COPSOQ-II scales analysis outliers were removed and a total of 285 and 233 individuals, respectively, were retained. The results from both scales characterization along with the distributions among WAI levels with significant statistical results and effect sizes, are presented in Table 2. To BriefCOPE scale, dimension normality assumption was not fulfilled for all dimension and Kruskal–Wallis tests was applied. From these tests 8 dimensions had a significant statistical result in their association with WAI scores. To COPSOQ-II scale, only “Influence”, “Role conflicts”, and “Job satisfaction” dimensions had normality and for these dimensions ANOVA analysis was applied, while to the others Kruskal–Wallis test was performed to test their association with WAI scores. The result was 22 dimensions with a significant statistical result in their association with WAI scores. In supplementary material are presented Tables S1 and S2 which contain these results for all dimensions of BriefCOPE and COPSOQ-II, respectively.

Table 2- BriefCOPE and COPSOQ-II characterization and their distribution among WAI scores with statistical result and effect size.

BriefCOPE Dimensions	Total (Mean±SD)	WAI (Mean±SD)			Statistical results	Effect size
		Poor/Moderate n=61(21.4)	Good n=152(53.3)	Excellent n=72(25.3)		
Active coping	3.16±0.58	2.95±0.52	3.15±0.57	3.39±0.55	$\chi^2(2) = 23.73$ $p < 0.001$	0.0771
Positive reinterpretation	2.82±0.72	2.63±0.67	2.80±0.73	3.04±0.70	$\chi^2(2) = 9.58$ $p = 8.317 \times 10^{-3}$	0.0269
Religion	1.76±0.84	2.02±1.00	1.61±0.74	1.89±0.84	$\chi^2(2) = 10.89$ $p = 4.311 \times 10^{-3}$	0.0315
Use of emotional support	2.65±0.75	2.90±0.75	2.58±0.77	2.60±0.67	$\chi^2(2) = 7.24$ $p = 2.672 \times 10^{-2}$	0.0186
Self-distraction	2.31±0.64	2.57±0.65	2.25±0.63	2.19±0.61	$\chi^2(2) = 13.56$ $p = 1.137 \times 10^{-3}$	0.0410
Denial	1.48±0.57	1.75±0.67	1.46±0.54	1.29±0.45	$\chi^2(2) = 19.52$ $p < 0.001$	0.0621
Substance usage	1.03±0.17	1.10±0.29	1.02±0.12	1.01±0.08	$\chi^2(2) = 10.36$ $p = 5.636 \times 10^{-3}$	0.0296
Behavioural disinvestment	1.34±0.44	1.56±0.50	1.30±0.43	1.22±0.36	$\chi^2(2) = 19.57$ $p < 0.001$	0.0623

COPSOQ-II Dimensions	Total (Mean±SD)	WAI (Mean±SD)			Statistical test	Effect size
		Poor/Moderate n=43(18.5)	Good n=128(54.9)	Excellent n=62(26.6)		
Cognitive demands	2.14±0.62	2.09±0.57	2.22±0.62	2.00±0.63	$\chi^2(2) = 6.03$ $p = 4.914 \times 10^{-2}$	0.0175
Influence	2.80±0.87	2.99±0.92	2.92±0.84	2.43±0.80	$F(2;230) = 8.34$ $p < 0.001$	0.0484
Possibilities for development	1.91±0.69	2.06±0.76	1.97±0.68	1.67±0.59	$\chi^2(2) = 10.72$ $p = 4.693 \times 10^{-3}$	0.0379
Meaning of work	1.73±0.66	2.06±0.72	1.75±0.63	1.47±0.56	$\chi^2(2) = 21.72$ $p < 0.001$	0.0858
Predictability	2.78±0.90	3.20±0.90	2.84±0.84	2.36±0.86	$\chi^2(2) = 21.72$ $p < 0.001$	0.0857
Rewards (recognition)	2.46±0.90	2.78±0.89	2.55±0.87	2.06±0.85	$\chi^2(2) = 20.89$ $p < 0.001$	0.0821
Role clarity	1.89±0.76	2.08±0.80	1.96±0.73	1.60±0.71	$\chi^2(2) = 17.45$ $p < 0.001$	0.0672
Role conflicts	2.99±0.65	2.76±0.63	2.99±0.59	3.17±0.72	$F(2;230) = 5.45$ $p = 4.892 \times 10^{-3}$	0.0251
Quality of leadership	2.95±1.00	3.37±0.94	3.00±0.97	2.55±0.96	$\chi^2(2) = 17.25$ $p < 0.001$	0.0663
Social support from supervisors	3.23±1.00	3.51±1.07	3.30±0.96	2.90±0.98	$\chi^2(2) = 9.30$ $p = 9.544 \times 10^{-3}$	0.0318
Job insecurity	2.97±1.46	3.02±1.47	2.77±1.43	3.32±1.45	$\chi^2(2) = 5.99$ $p = 4.999 \times 10^{-2}$	0.0174
Job satisfaction	2.74±0.76	3.07±0.66	2.82±0.74	2.36±0.74	$F(2;230) = 13.75$ $p < 0.001$	0.1160
Work/Family conflict	3.32±0.97	2.86±0.92	3.31±0.95	3.67±0.92	$\chi^2(2) = 16.25$ $p < 0.001$	0.0620
Trust regarding management	2.42±0.69	2.73±0.64	2.44±0.66	2.18±0.70	$\chi^2(2) = 17.25$ $p < 0.001$	0.0663
Justice and respect	2.75±0.76	3.06±0.81	2.77±0.71	2.49±0.74	$\chi^2(2) = 13.85$ $p < 0.001$	0.0515
Self-efficacy	2.29±0.60	2.65±0.61	2.28±0.54	2.05±0.57	$\chi^2(2) = 24.89$ $p < 0.001$	0.0995
Self rated health	2.25±0.71	2.72±0.70	2.27±0.62	1.89±0.68	$\chi^2(2) = 36.16$ $p < 0.001$	0.1490
Stress	3.26±0.94	2.62±0.73	3.25±0.91	3.73±0.84	$\chi^2(2) = 37.79$ $p < 0.001$	0.1560
Burnout	3.00±0.91	2.30±0.71	3.00±0.90	3.48±0.72	$\chi^2(2) = 44.27$ $p < 0.001$	0.1840
Sleeping troubles	3.89±1.07	3.11±1.19	4.00±1.02	4.19±0.85	$\chi^2(2) = 23.48$ $p < 0.001$	0.0934
Depressive symptoms	3.61±1.00	2.93±1.06	3.56±0.94	4.20±0.72	$\chi^2(2) = 40.41$ $p < 0.001$	0.1670
Bullying	4.88±0.21	4.82±0.23	4.87±0.23	4.95±0.13	$\chi^2(2) = 13.57$ $p = 1.132 \times 10^{-3}$	0.0503

SD = standard deviation; χ^2 = Kruskal–Wallis test; F = one way ANOVA; p = P-value

Exploratory factor analysis

In exploratory factor analysis, for BriefCOPE dimensions the model selected was constituted by 4 factors using direct oblimin rotation. The model explained 57% of variance and had a Root-Mean-Square Residuals (RMSR) of 0.08. BriefCOPE model had a Cronbach's alpha value of 0.67. Table 3 presents the best model dimensions distribution for this scale showing each loading values and the theoretical model defined in Ramos study [8]. Also, eigenvalues, explained variance and Cronbach's alpha values are presented for each factor.

Table 3 - BriefCOPE exploratory factor analysis results and theoretical model definition.

BriefCOPE dimensions	Theoretical model			Best model (direct oblimin rotation)			
	F1	F2	F3	F1	F2	F3	F4
Use of emotional support ($\alpha_c=0.64$)		X		0.85			
Use of instrumental support ($\alpha_c=0.62$)	X			0.87			
Expression of feelings ($\alpha_c=0.65$)			X	0.69			
Active coping ($\alpha_c=0.64$)	X				-0.72		
Planning ($\alpha_c=0.63$)	X				-0.60		
Self-distraction ($\alpha_c=0.67$)			X		0.46		
Denial ($\alpha_c=0.68$)			X		0.55		
Behavioural disinvestment ($\alpha_c=0.69$)			X		0.76		
Positive reinterpretation ($\alpha_c=0.64$)		X				0.67	
Acceptance ($\alpha_c=0.63$)		X				0.65	
Humour ($\alpha_c=0.66$)		X				0.77	
Religion ($\alpha_c=0.66$)		X					-0.68
Substance usage ($\alpha_c=0.66$)			X				0.44
Self-blaming ($\alpha_c=0.65$)			X				0.57
			Eigenvalues	2.45	2.20	2.16	1.10
			Explained variance (%)	18	16	15	8
			Cronbach's Alpha	0.75	0.20	0.63	0.04

α_c = Cronbach's Alpha

In exploratory factor analysis, for COPSOQ-II dimensions the model selected was constituted by 7 factors using varimax rotation. The model explained 64% of variance and had a Root-Mean-Square Residuals (RMSR) of 0.05. COPSOQ-II model had a Cronbach's alpha value of 0.91. In this model dimensions as "Emotional demands", "Commitment to the workplace", "Role clarity" and "Work/Family conflict" presented problematic cross-loadings, so they were not associated to a factor. Table 4 presents the best model dimensions distribution for this scale showing each loading values and the theoretical model defined in Ramos study [8]. Also, eigenvalues, explained variance and Cronbach's alpha values are presented for each factor.

Confirmatory factor analysis

Confirmatory factor analysis was also conducted for each scale. For both scales the assumption of normality was not fulfilled ($p < 0.05$), so DWLS method was applied for a robust result. For BriefCOPE, the results obtained for the theoretical value were a P-value (Chi-square) less than 0.001, a Comparative Fit Index (CFI) equal to 0.567 and a Root Mean Square Error Of Approximation (RMSEA) equal to 0.141, while the best model had a P-value (Chi-square) less than 0.001, CFI equal to 0.739 and RMSEA equal to 0.112. For COPSOQ-II, the results obtained for the theoretical value were a P-value (Chi-square) less than 0.001, a CFI equal to 0.969 and a RMSEA equal to 0.052, while the best model had a P-value (Chi-square) equal to 0.603, CFI equal to 1.000 and RMSEA less than 0.001. In both scales, the results of the ANOVA show a P-value lower than 0.001. In supplementary material are presented Figures S1 and S2 which contain these results for BriefCOPE and COPSOQ-II, respectively.

Discussion:

On the topic of sociodemographic characterization, all the variables have a P-value superior to 0.05 in statistical result from their association with WAI categories. This indicates that the variables distribution in WAI scores are not statistically different among the categories. About BriefCOPE dimensions association with WAI scores, 8 dimensions ("Active coping", "Positive reinterpretation", "Religion", "Use of emotional support", "Self-distraction", "Denial", "Substance usage" and "Behavioural disinvestment") presents P-values lower than 0.05, so, for these dimensions we have a significant difference among WAI

Table 4 - COPSOQ-II exploratory factor analysis results and theoretical model definition.

COPSOQ-II dimensions	Theoretical model								Best model (varimax rotation)							
	F1	F2	F3	F4	F5	F6	F7	F8	F1	F2	F3	F4	F5	F6	F7	
Influence ($\alpha_c=0.91$)		X							0.52							
Meaning of work ($\alpha_c=0.91$)		X							0.51							
Predictability ($\alpha_c=0.90$)			X						0.76							
Rewards (recognition) ($\alpha_c=0.90$)			X						0.73							
Role conflicts ($\alpha_c=0.91$)			X						-0.57							
Quality of leadership ($\alpha_c=0.90$)			X						0.76							
Social support from supervisors ($\alpha_c=0.91$)			X						0.56							
Job satisfaction ($\alpha_c=0.90$)				X					0.74							
Trust regarding management ($\alpha_c=0.90$)					X				0.76							
Mutual trust between employees ($\alpha_c=0.91$)					X				-0.58							
Justice and respect ($\alpha_c=0.90$)					X				0.85							
Self-efficacy ($\alpha_c=0.90$)						X			0.67							
Self rated health ($\alpha_c=0.91$)							X			-0.61						
Stress ($\alpha_c=0.91$)							X			0.78						
Burnout ($\alpha_c=0.91$)							X			0.75						
Sleeping troubles ($\alpha_c=0.91$)							X			0.74						
Depressive symptoms ($\alpha_c=0.90$)							X			0.77						
Work pace ($\alpha_c=0.91$)	X													0.71		
Social support from colleagues ($\alpha_c=0.91$)			X		X							0.85				
Social community at work ($\alpha_c=0.91$)												0.76				
Quantitative demands ($\alpha_c=0.91$)	X												0.79			
Bullying ($\alpha_c=0.91$)								X						0.51		
Cognitive demands ($\alpha_c=0.91$)	X										0.84					
Possibilities for development ($\alpha_c=0.91$)		X									0.66					
Job insecurity ($\alpha_c=0.91$)				X											0.60	
Emotional demands* ($\alpha_c=0.91$)	X											0.42			0.42	
Commitment to the workplace* ($\alpha_c=0.91$)		X							0.47							
Role clarity* ($\alpha_c=0.91$)			X						0.48		0.41					
Work/Family conflict* ($\alpha_c=0.91$)				X						0.40				0.48		
									Eigenvalues	6.79	3.32	2.20	2.01	1.67	1.32	1.30
									Explained variance (%)	23	11	8	7	6	5	4
									Cronbach's Alpha	0.91	0.82	0.69	0.74	0.17	1.00	1.00

α_c = Cronbach's Alpha; * Dimensions that were not assigned to any factor (represented by the grey cells).

categories. Regarding Table 2, the excellent work capacity presents the highest values for “Active coping” and “Positive reinterpretation” representing a situation of “I almost always do this” while for the other dimensions, excellent work capacity presents the lowest values, representing a situation of “Never do this” or “Sometimes I do this”. In addition, “Active coping” dimension has a moderate effect on WAI. Identical results were obtained for 22 dimensions of COPSOQ-II (“Cognitive demands”, “Influence”, “Possibilities for development”, “Meaning of work”, “Predictability”, “Rewards (recognition)”, “Role clarity”, “Role conflicts”, “Quality of leadership”, “Social support from supervisors”, “Job insecurity”, “Job satisfaction”, “Work/Family conflict”, “Trust regarding management”, “Justice and respect”, “Self-efficacy”, “Self rated health”, “Stress”, “Burnout”, “Sleeping troubles”, “Depressive symptoms” and “Bullying”), those revealed differences statistically significant among WAI categories. For this scale, the excellent work presents the highest values for “Role conflicts”, “Work/Family conflict”, “Stress”, “Sleeping troubles”, “Burnout”, “Depressive symptoms”, and “Bullying” for COPSOQ-II, representing a situation of “Never/ almost never”. These indicate that excellent WAI individuals that never (mean value 5) or rarely (mean value 4) experienced stress, sleeping issues, burnout and depressive symptoms have an excellent capacity to work. For the other dimensions, the excellent work capacity presents the lowest value, representing the situation of “Always” or “Frequent”. Regarding the effect size results, dimensions such as “Self rated health”, “Stress”, “Burnout” and “Depressive symptoms” have a large effect on WAI. In EFA, for Brief-COPE scale the best model selected is constituted by 4 factors and explains 57% of variance. In this model factor 1 has a Cronbach's alpha value superior to 0.70 which indicates a good internal consistency in this factor according with Nunnally [9] although some author might consider values above 0.60 has satisfactory or reasonable [10], so we can consider that factor 3 also has a good internal consistency. The medium

value of Cronbach's alpha for BriefCOPE model (0.67) indicates a good internal consistency in our data. For COPSOQ-II scale the best model selected is constituted by 7 factors and explains 64% of variance. In this model only factor 4 has a Cronbach's alpha value inferior to 0.60 which indicates a bad internal consistency in this factor. About the medium value of Cronbach's alpha for COPSOQ-II model (0.91), this value indicates a great internal consistency in our data.

Regarding the CFA results for the BriefCOPE scale, the P-value for both models is statistically significant ($p < 0.05$), indicating that the models do not fit the data perfectly, but this is common in many applications. Comparing the rest of the results, as expected, the best model has a better fit than the theoretical model. This is indicated by the fact that the best model has a higher CFI value and lower RMSEA value than the theoretical model. However, the fit indices for the best model still indicate room for improvement. In this case, a CFI value above 0.94 and an RMSEA value below 0.08 would be ideal for a model's good fit, which is not the case with the best model.

When it comes to the CFA results for the COPSOQ-II scale, the P-value for best model is not statistically significant ($p > 0.05$), indicating that the model fit the data. When it comes to the rest of the results, just like in BriefCOPE, the best model has a better fit than the theoretical model. This is also indicated by the fact that the best model has a higher CFI value and lower RMSEA value than the theoretical model. The fit indices values also show that the best model has a decent fit to the data, with a RMSEA value below 0.08 and a CFI value above 0.94. In both scales, the P-values obtained in the ANOVA indicate that the best model is significantly different in comparison with the theoretical model. Concluding, our data constituted only by Dietitians/Nutritionists, do not fit the theoretical models of BriefCOPE and COPSOQ-II scales defined in Ramos work [8] that were applied for different professionals.

Ethics committee and informed consent:

The current research was approved by two independent ethics committee (Centro Hospitalar de São João do Porto and Escola Superior de Saúde de Viseu) and subjects gave their informed consent before they were enrolled in the study.

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