Translation, reliability and validity of the job satisfaction scale in a sample of Portuguese fitness professionals

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Abstract

This study aimed to translate and validate the job satisfaction scale (JSS) to Portuguese fitness professionals. A total of 418 fitness professionals (210 male; 208 female) with an average age of 30.9 ± 6.5 years and a professional experience of 7.72 ± 9.1 years participated in this study. Before conducting a confirmatory factor analysis (CFA), we designed a test-retest analysis to determine reliability. Cronbach's alpha demonstrated satisfactory internal consistency (.96), which revealed a high degree of temporal reliability. The confirmatory analyses supported a unidimensional model (1 factor/16 item) of the JSS in terms of model adequacy coefficients. In conclusion, we found that the measurement model (1 factor/16 items) of the translation and validation of the JSS for Portuguese fitness professionals had highly acceptable psychometric properties and can be used in future to access their job satisfaction.

Keywords Job satisfaction · Job satisfaction scale · Fitness professionals · Validation studies · Psychometrics

Introduction

A certified fitness professional has substantial knowledge about exercise and health (Fischer & Bryant, 2008) and encourages clients in their exercise routine to evaluate their fitness strengths and weaknesses, measures their physical exercise progress and educates them about wellness and health (Terason, 2018). In 2019, the Portugal Gyms Association reported that approximately 12,086 fitness professionals are working in the sector, leading to the substantial growth of this sector and contributing to customer satisfaction and retention (AGAP,

2020). When fitness professionals are satisfied with their work, it contributes, as in other professions, to high organizational commitment and low turnover rate between jobs (Llorente & Macías, 2005; Yousef, 2017).

Job satisfaction is frequently measured in industrial/organizational psychology (Dormann & Zapf, 2001; Heritage, Pollock, & Roberts, 2015). Furthermore, such satisfaction is strongly related to optimal well-being (Sironi, 2019), mental and physical health (Faragher, Cass, & Cooper, 2005), organizational commitment (Lok & Crawford, 2004) and is moderately related to job performance (Judge, Thoresen, Bono, & Patton, 2001). Higher levels of professional identity and job satisfaction are also associated with less burnout, and job satisfaction may perform a facilitating role between professional identity and burnout (Lu, Luo, Chen, & Wang, 2019; Malinen & Savolainen, 2016).

Job satisfaction includes the judgment of an individual's job or job circumstances, reflecting their reaction to the features, contests and profits of the work in which they are involved (Weiss, 2002). Thus, job satisfaction can be conceptualized as 'a related constellation of attitudes about various aspects or facets of the job' (Spector, 1997, p. 2).

The main aspects of job satisfaction have been defined as 'intrinsic'—reflecting the more internal reactions to integral structures of the work involved, such as the autonomy to carry out one's work process or the acknowledgement that one

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receives from performing good work—and ‘extrinsic’, which describes job features that are more external to the work involved, including salary, responsibility and autonomy, management structures and team relationships (Hills, Joyce, & Humphreys, 2012; Spector, 2008; Stride, Wall, & Catley, 2007; Warr, Cook, & Wall, 1979). Research regarding job satisfaction is typically undertaken using self-report questionnaires in cross-sectional or longitudinal surveys. Besides that, several job satisfaction instruments, including single- and multi-item scales, have been employed over the last three decades (Hills et al., 2012).

Job Satisfaction Scale

The job satisfaction scale (JSS) is one of the most frequent questionnaires used in academic contexts. Several studies report the translation and validation of this instrument to different countries and employee types (Castañeda-Hidalgo et al., 2009; Heritage et al., 2015; Magnavita, Fileni, & Bergamachi, 2009). However, the factorial structure underlying JSS and its psychometric properties are still under examination (Gonçalves, Santos, Orgambidez-Ramos, Nené & Sousa, 2016; Heritage et al., 2015; Hills et al., 2012).

The original version of the JSS (Warr et al., 1979) divided employee satisfaction into the intrinsic and extrinsic factors required to accomplish job satisfaction. For this purpose, the authors proposed 15 quantitative items, which indicate the intrinsic/extrinsic factors and a 16th item measuring overall job satisfaction. All items reflect positive senses, and participants must indicate how satisfied or dissatisfied they are about each work characteristic. The response scale is from 1 (*extremely dissatisfied*) to 7 (*extremely satisfied*). The structure proposed by the original authors, after performing a preliminary cluster analysis (an exploratory technique), comprises two- (intrinsic/extrinsic) or three- (job itself intrinsic satisfaction/working conditions extrinsic satisfaction/employee relations satisfaction) factor solutions.

Some authors (Heritage et al., 2015; Hills et al., 2012) have analyzed the JSS structure with more sophisticated statistical methods. Using exploratory factor analysis, several authors (Arias, Rivera, & Ceballos, 2017; Boluarte, 2014; Falkum & Vladum, 2005; Heritage et al., 2015; Hills et al., 2012; Morrison, 2004) have developed a single-factor solution that better represents the JSS structure. More recent studies cite the two-factor solution of the JSS provided by the original version, although these recent works were based on the cluster analysis technique (Ose et al., 2010; Solberg et al., 2012; Travers & Cooper, 1993; Turner, Ross, & Ibbetson, 2011), identical to the original authors’ approach. The two-factor solution of the JSS was also analyzed in other countries, including Italy (Magnavita et al., 2009), the United Kingdom and Malaysia (Malek & Flin, 2010). Short versions (Cooper, Rout, & Faragher, 1989; Goetz et al., 2012) of the original JSS

also seem to assume two-factor representativeness, based on the original exploratory findings; however, these versions do not provide statistical evidence to support this assumption. The three-factor solution, noted by the original authors, was also used by Ulleberg and Rundmo (1997), with a sample of 1137 employees on offshore oil installations in the Norwegian part of the North Sea. However, the ‘working conditions extrinsic’ factor had a low and unacceptable internal consistency ($\alpha = .57$), concurring with the original authors’ findings.

Present Study

Currently, no instrument assesses fitness professionals’ job satisfaction in Portugal. Regarding the JSS, some research has made contributions to the translation and validation of this instrument (Gonçalves et al., 2016), although the data comprised 632 participants from several jobs and not from a fixed career type. Gonçalves et al. (2016) supported the findings of a unidimensional solution (1 factor/16 item) best representative of the JSS in terms of internal consistency.

Considering the previous assumptions and the lack of instruments to assess job satisfaction in Portugal, specifically in the fitness area, this study aims to translate and investigate the factor structure, performing reliability and validity analyses of the JSS for the Portuguese population, more specifically for fitness professionals.

Method

Instruments

The JSS (Warr et al., 1979), in its original version, comprised 16 items divided by the original authors into two- or three-factor solutions (Table 1) for the first 15 items. The 16th item reported on overall job satisfaction. For the answers, a seven-point Likert scale was used, which varied between 1 (*Extremely Dissatisfied*) and 7 (*Extremely Satisfied*).

Translation of Questionnaire

Translation and adaption of the JSS from the original language (English) to Portuguese were carried out using methodological procedures recommended by Vallerand (1989). However, as an alternative to the translation/back-translation method, the committee approach was used. The procedure of translation/adaption was divided into five stages: (1) Initial Translation: the translation was completed by the investigators with the assistance of two professional translators, with academic education in English-Portuguese—1st version of the questionnaire; (2) First Committee: examination of the 1st version by a group of four experts from different academic research areas (Sports Psychology, Sports Science,

Table 1 Item factor of the JSS (Warr et al., 1979)

Item	Two-factor solution		Three-factor solution		
	Intrinsic	Extrinsic	Job Itself intrinsic	Working conditions extrinsic	Employee relations
1. Physical work conditions		X		X	
2. Method of working	X		X		
3. Fellow workers		X		X	
4. Recognition	X				X
5. Immediate boss		X		X	
6. Responsibility	X		X		
7. Pay		X			X
8. Abilities	X		X		
9. Industrial Relations		X			X
10. Promotion	X				X
11. Management		X			X
12. Suggestions	X				X
13. Hours		X		X	
14. Variety	X		X		
15. Job security		X		X	
16. Overall job satisfaction					

Psychology, Fitness Professionals) that resulted in the 2nd version of the questionnaire; (3) Second Committee: the second version was given to a new panel of 4 specialists (Sports Science, Sports Psychology, Fitness Professionals) who analyzed and decided unanimously upon the questionnaire item contents, resulting in the 3rd version of the questionnaire; (4) A Pilot study was conducted with the 3rd version of the questionnaire and was applied to 50 subjects (fitness higher education students) to determine issues related to understanding and clarification of the items. After this step, the 4th version resulted; (5) Final Review: a review of syntax aspects of the 4th version by Portuguese teachers and elaboration of the final version.

Participants

Data collection involved 418 fitness professionals (males = 210 females = 208) with an average age of 30.9 ± 6.57 (mean (M) $\pm$ standard deviation (SD)) years and a professional experience of 7.72 ± 9.1 (M $\pm$ SD) years. 62.7% of the sample had a bachelor's degree, 23.9% a master's degree (MSc), 12% had completed secondary school, 1.2% held a PhD, and 0.2% had a basic school education.

Data Collection

The questionnaires were applied using the SurveyMonkey platform, with a mean time for completion of 4 min. Ethical

approval was obtained from the ethics and scientific board of the University of Beira-Interior, Portugal.

Statistical Analysis

The data collected were analyzed using SPSS software (version 22.0). The mean (M) and standard deviation (SD) of each JSS item were determined. A preliminary analysis was conducted to verify data distribution, missing values and outliers. We performed a test-retest analysis to determine the reliability of the JSS before conducting a confirmatory factor analysis (CFA). Pearson's r coefficient was used to determine the test-retest reliability of participant responses. Fifty participants were involved in this analysis, based on Hair, Black, Babin, and Anderson (2019) suggestions. The period between survey administrations was 4 weeks, as recommended by Vallerand (1989). A confirmatory factor analysis with a maximum likelihood method (ml) in AMOS (version 23.0) was also performed. A proportion of at least 10:1 (ten subjects by parameter) was followed (Byrne, 2016) by a final sample of 418 subjects (males = 210 females = 208). The model adequacy was tested through the incremental and absolute indexes (Byrne, 2016; Hair et al., 2019), namely: the comparative fit index (CFI), the Tucker-Lewis index (TLI), the standard mean root square residual (SRMR) and the root mean square error of approximation (RMSEA) and its confidence interval (90% CI). The following cut-off values were assumed: CFI and TLI ≥ 0.90 , SRMR ≤ 0.8 and RMSEA ≤ 0.8 . For the

comparison of nested-models, a parsimony comparative fit-index was used, and cut-off values close to .08 were considered more parsimonious (Hair et al., 2019). Internal consistency, via composite reliability, was calculated, and values superior or equal to .70 were considered acceptable (Hair et al., 2019). Finally, average variance extracted (AVE) was also calculated to verify convergent validity (Hair et al., 2019), and values greater than or equal to .50 were assumed as the cut-off value, as recommended by Hair et al. (2019).

Results

Preliminary Analysis

There were no missing values, neither were there outliers or uni- or multivariate. Item-level descriptive statistics exposed no violations of a univariate normal distribution, since skewness and kurtosis were contained between -2 to $+2$, and -7 to $+7$, respectively (Byrne, 2016). However, the Mardia coefficient of Multivariate Kurtosis exceeded the recommended value (5.0); hence, a Bollen-Stine bootstrap (2000) was used for further analysis (Nevitt & Hancock, 2001).

Descriptive Statistics

The values in Table 2 show the average, standard deviation, minimum and maximum of each JSS item. The highest values were from item 2 (5.93), referring to ‘freedom to choose your working method’, whereas item 10 (referring to ‘your promotion opportunities’) had the lowest values (4.54).

Table 2 Descriptive statistics

Job Satisfaction $n = 418$	
Item 1 $M \pm SD$	5.43 ± 1.05
Item 2 $M \pm SD$	5.93 ± 1.10
Item 3 $M \pm SD$	5.68 ± 1.10
Item 4 $M \pm SD$	5.06 ± 1.46
Item 5 $M \pm SD$	5.39 ± 1.33
Item 6 $M \pm SD$	5.47 ± 1.15
Item 7 $M \pm SD$	4.67 ± 1.49
Item 8 $M \pm SD$	5.65 ± 1.10
Item 9 $M \pm SD$	5.33 ± 1.39
Item 10 $M \pm SD$	4.54 ± 1.58
Item 11 $M \pm SD$	4.94 ± 1.42
Item 12 $M \pm SD$	4.97 ± 1.34
Item 13 $M \pm SD$	5.10 ± 1.35
Item 14 $M \pm SD$	5.37 ± 1.16
Item 15 $M \pm SD$	4.73 ± 1.69
Item 16 $M \pm SD$	5.44 ± 1.11

Test-Retest Analysis

Bivariate Pearson’s correlation revealed that responses to each item in the first and second surveys varied from .70 (item 9) to .97 (item 4). Additionally, Cronbach’s alpha revealed an adequate internal consistency in two times (Table 3).

Construct Validity

Results from Table 4 show that the following models fit the data: Global model 1 factor with 16 items, a 3-Dimensional model with 3 factors and 15 items (without item 16), Hierarchical model with 3 factors and 14 items (without item 3/16) and Hierarchical model with 3 factors and 15 items (without item 16), according to the cut-off values adopted in the methodology (Byrne, 2016; Hair et al., 2019). The remaining models did not fit the data. The Global model 1 factor and 16 items were also more parsimonious compared to the others, suggesting that a one-dimensional solution was the best representative of the scale in Portuguese fitness professionals.

Discussion

The present study aimed to translate and validate the JSS to Portuguese fitness professionals. We also examined the JSS factor structure (Warr et al., 1979) through confirmatory factor analysis (CFA).

The results of translation and reliability showed adequate internal consistency in two times, resulting in a high degree of temporal reliability. The reliability value for all items was .96. In the only study contributing to the translation and validation of the JSS to the Portuguese language (Gonçalves et al., 2016), the scale reliability analysis was performed and obtained a value of .93, which also reveals an adequate consistency.

For the translation of the JSS into the original English version, some terms were changed in the process of translating the questionnaire, namely those related to ‘industrial relations’, which are highly specific to industry workers to which the original questionnaire was applied. There were also small-scale differences in our investigation and that of Gonçalves et al. (2016) that had been proposed by experts contributing to this methodological step. The term ‘company’ was exchanged for the term ‘organization’, which is most frequently used today in the fitness area. The final version of the JSS in Portuguese appears in Appendix 1.

Concerning the JSS factor structure, the original authors found two- (intrinsic/extrinsic) or three- (job itself intrinsic satisfaction/working conditions extrinsic satisfaction/employee relations satisfaction) factor solutions that best represent JSS. These results were supported by a preliminary cluster analysis technique and an internal consistency that reveals, in the two studies that they were carried out in, less

Table 3 Test-retest analysis

Items	M ± SD 1	M ± SD 2	<i>r</i>	<i>p</i>	Alpha
Item 1 Pre-Post	5.70 ± 1.27	5.76 ± 1.02	.75	<.001	
Item 2 Pre-Post	5.76 ± 1.19	5.72 ± 1.14	.91	<.001	
Item 3 Pre-Post	6.10 ± 1.04	5.96 ± 1.16	.80	<.001	
Item 4 Pre-Post	5.27 ± 1.43	5.22 ± 1.39	.97	<.001	
Item 5 Pre-Post	5.38 ± 1.44	5.44 ± 1.26	.93	<.001	
Item 6 Pre-Post	5.56 ± 1.16	5.54 ± 1.28	.83	<.001	
Item 7 Pre-Post	4.76 ± 1.48	4.90 ± 1.23	.78	<.001	
Item 8 Pre-Post	5.48 ± 1.18	5.42 ± 1.26	.92	<.001	
Item 9 Pre-Post	5.52 ± 1.23	5.30 ± 1.40	.70	<.001	
Item 10 Pre-Post	5.20 ± 1.53	5.00 ± 1.51	.90	<.001	
Item 11 Pre-Post	5.30 ± 1.43	5.26 ± 1.50	.94	<.001	
Item 12 Pre-Post	5.48 ± 1.25	5.32 ± 1.20	.86	<.001	
Item 13 Pre-Post	4.94 ± 1.45	4.82 ± 1.45	.89	<.001	
Item 14 Pre-Post	5.46 ± 1.25	5.48 ± 1.25	.92	<.001	
Item 15 Pre-Post	5.38 ± 1.43	5.34 ± 1.49	.92	<.001	
Item 16 Pre-Post	5.56 ± 1.07	5.54 ± 1.05	.94	<.001	
Job Satisfaction Pre-Post	5.42 ± 1.03	5.38 ± 1.02	.98	<.001	.96

acceptable alpha reliability for the working conditions' extrinsic satisfaction factor ($\alpha = .58$ to $.60$); therefore, they proposed the use of two-factor solutions (intrinsic/extrinsic). The current did not support those findings. The Global model 1 factor/16 items, 3-Dimensional model 3 factors/15items,

Hierarchical model 3 factors/14items (without items 3/16) and Hierarchical model of 3 factors/15items (without item 16) provided the best model fit. However, the low parsimony comparative fit-index of these models revealed that Global model 1 factor/16 items were considered more parsimonious than the others. Item 3, relating to 'Fellow workers' and item 13, 'Hours of work', were the weakest of the JSS items in terms of its relatedness to latent factors. However, they do not impact the internal reliability when omitted; hence, it is not reasonable to suggest that these items should be omitted when using the JSS for Portuguese fitness professionals.

Over the decades, several authors have translated and validated the JSS to other languages and/or analyzed the scale's factor structure, exploring more advanced statistical techniques than the original authors. Heritage et al. (2015), using confirmatory factor analyses, tested several models, and the results supported a Hierarchical three-factor model of job satisfaction in terms of model adequacy coefficients. However, the three factors were highly correlated, so they recommended the use of the JSS as a total score, corroborating the results of our study, although the Global JSS model of these authors comprises 1 factor/15 item (without item 16), and our results reveal better parsimony in the Global model 1 factor/16 items. Arias et al. (2017) performed an exploratory and confirmatory factor analysis and confirmed that the JSS has a better adjustment in a Global model 1 factor/15 items (without item 16), similar to Heritage and co-workers' (Heritage et al., 2015) findings. Gonçalves et al. (2016), who also translated and

Table 4 Fit indexes of the measurement models

Models	X ²	df	X ² /dt	B-S p	CFI	TLI	SRMR	RMSEA-90%	PCFI	AVE	CR
Global Model 1F/16 items	418.002	104	4.019	<.001	.914	.901	.0449	.080 (.077–.094)	.792	.48	.93
Global Model 1F/15 items (without 16)	361.136	90	4.013	<.001	.89	.814	.463	.080 (.076–.094)	.783	.43	.93
Bi-Dimensional 2F/15 items (without 16)	357.551	89	4.017	<.001	.915	.899	.0461	.080 (.076–.094)	.775	1 .40	.880 .847
3-Dimensional 3F/15 items (without 16)	317.900	87	3.654	<.001	.927	.911	.0436	.080 (.070–.089)	.768	.51 .31 .59	.804 .690 .896
Hierarchical Model 2F/15 items (without 16)	935.078	90	10.834	<.001	.718	.671	.0226	.080 (.145–.162)	.616	.62 .53	.918 .896
Hierarchical Model 2F/14 items (without 13/16)	895.865	77	11.635	<.001	.723	.673	.2309	.160 (.150–.169)	.612	.61 .55	.918 .892
Hierarchical Model 3F/14 items (without 3/16)	266.471	74	3.601	<.001	.936	.922	.0410	.080 (.069–.089)	.761	.50 .33 .59	.803 .659 .896
Hierarchical Model 3F/15 items (without 16)	317.900	87	3.654	<.001	.927	.911	.0436	.080 (0.70–0.89)	.768	.50 .31 .59	.804 .690 .896

validated the JSS into Portuguese, support the use of a general factor of job satisfaction (1 factor/16 item). Morrison (2004) carried out a confirmatory factor analysis indicating that the items constituting the JSS could be analyzed in one dimension, with a coefficient of .83. In the test-retest analysis, a coefficient of .63 was obtained for total job satisfaction. The authors recommended using only one dimension.

This version of the JSS for Portuguese fitness professionals allows us to measure these professionals' job satisfaction and compare the scores achieved with other variables and with other countries' fitness professionals. In Spain, the JSS version translated and validated for Spanish by Boluarte (2014) was used to measure job satisfaction of fitness professionals with a degree in physical activity and sports science as well to compare job satisfaction with five professional profiles (Grimaldi-Puyana, Pérez-Villalba, Bernal-García, & Sánchez-Oliver, 2018). Also in Spain, a comparative study across age, gender, work experience and higher degree studied was performed with fitness professionals (Bernabé, González-Rivera, & Campos-Izquierdo, 2016). Other works (Koehler 1998; Koustelios, Kouli, & Theodorakis, 2003; Bevilacqua, Silva, Reichert & Rombaldi 2014) measured job satisfaction for fitness professionals in different countries, using other instruments.

With the substantial growth of gyms and consequent increases in fitness professional numbers in Portugal, this questionnaire may represent an important tool for measuring job satisfaction of these professionals, and it may be vital for retention and satisfaction of fitness service consumers.

Conclusions

We found that the model (1 factor/16 item) of the translation and validation of the JSS (Warr et al., 1979) for Portuguese fitness professionals had highly acceptable psychometric properties and can be used in this manner to measure their job satisfaction.

However, the instruments' validation is a lengthy process, and more studies are necessary to support our findings. More robust psychometric techniques (e.g., invariance analyses of this measurement model with other variables or cultures) should be explored, studies with this scale should be carried out for other professions, and because this was a cross-sectional study, a longitudinal analysis should be conducted.

Finally, it must be emphasized that this research not only involved a Portuguese version of the JSS for fitness professionals, filling a gap that had existed, but it also provided an instrument to allow fitness professionals associations, fitness managers and fitness directors to acquire valid and reliable indicators of fitness professionals' job satisfaction. Hence, this work identified why professionals are dissatisfied and may be

attempting to improve their working conditions and, therefore, provide a better service for fitness customers.

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Data Availability Nothing to declare.

Compliance with Ethical Standards

Conflict of Interest On behalf of all authors, the corresponding author states that there is no conflict of interest.

Ethical Statement The research protocol was approved by the Ethics Committee of the University of Beira Interior, Portugal (N°ID1126).

Ethics, Consent and Permissions The purposes of the study and the ethical consideration for the participants (e.g., confidentiality of their information and management of data anonymously) were explained to the participants. All participants had given informed consent to be included in the study.

Code Availability Nothing to declare.

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