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VALIDITY AND RELIABILITY EVIDENCES OF A MODEL OF HUMAN RESOURCE MANAGEMENT PRACTICES IN THE PUBLIC SERVICE

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1. INTRODUCTION

When identifying the relevance of people's role, organizations are looking for new ways to insert and improve Human Resource Management (HRM) practices throughout the organization, in line with the organizational strategy (Armstrong, 2014; Guest, 1987; Legge, 2006). In a context in which technology does not guarantee the company's competitiveness, the skills derived from people become the differential, which is in accordance with the Resource-Based View Theory proposed by Barney (1991) and which will compose the conceptual framework of the present study (Costa, Demo, & Paschoal, 2019).

Considering human resources as responsible for the production of knowledge and consequent competitive advantage, HRM practices can be used by the institution to achieve its objectives, as these practices favor the commitment of employees (Demo, Nunes, Mendes, Ferreira & Melo, 2011; Demo, 2010). As a result, there is an evident improvement in quality, profitability and organizational productivity (Guest, 1987; Ulrich, Halbrook, Meder, Stuchlik, & Thorpe, 1991). Thus, human resource management practices are an important foundation for an organization, provided that it knows how to apply and use them, even in times of changes in the organization, whether internal or external, such as the effects caused by COVID-19 (Carnevale & Hatak, 2020).

From this perspective, the importance of understanding the relationship between HRM practices and organizational strategy is evident, analyzing the consequences of this relationship, both in private and public companies. This was demonstrated with Katou (2012), when she found that there is a mediation between these human resource management practices and organizational performance, and the result of this relationship brings positive and/or negative consequences that are demonstrated through the attitudes and behaviors of employees (Conway & Monks, 2008).

Knowing the importance of analyzing both an organization's HRM practices and the results derived from them, Demo (2008) developed and validated the Human Resources Management Policies Perception Scale (HRMPP), which, after expansion and complementation, helped to validate the first version of the HRPPS (Human Resources Policies and Practices Scale) which contained 6 factors and 40 items (Demo, Neiva, Nunes, & Rozzett, 2012). Subsequently, this same Scale was validated in the United States by Demo and Rozzett (2012), with only the modification for 32 items, keeping the 6 original factors, namely: (i) Recruitment and Selection; (ii) Involvement; (iii) Training, Development & Education; (iv) Work Conditions; (v) Competency Based Performance Appraisal; and (vi) Compensation and Rewards.

The objective of this research is to identify evidence of validity and reliability of the Human Resouces Management Practices Scale (HRMPS) for Public Management, through the adaptation of Demo (2012) in view of the gap in the literature on measures of human resource management practices customized for the public service (Demo, Fogaça, & Costa, 2018). To achieve the general objective of the research, the following specific objectives were listed: (i) to develop the Public HRMPS with public servants; (ii) identify signs of validity and reliability of the Public HRMPS; and (iii) identify evidence of confirmatory validity of the Public HRMPS, verifying its reliability, internal and construct validity (convergent and divergent).

2. THEORETICAL BACKGROUND

According to Mathis and Jackson (2003), HRM consists of the ability to manage human resources, through policies and practices, to acquire and maintain competitive advantage. Thus, human capital is the core competence of organizations, which, according to these authors,

consists of the organization's ability to create high value and differentiate itself from its competitors. In Mascarenhas (2009) view, a core competence has three characteristics: "it is valuable and versatile, it can be used in a wide variety of markets; it offers real benefits to consumers; and it is difficult to imitate" (Demo, p. 120, 2016).

The idea that an organization's human resources are firm resources that carry the capacity to sustain competitive advantages is within the four requirements of Barney's (1991) Resource Based View (RBV). This view defends that individuals and the interpersonal relationships between them constitute valuable resources in the production of knowledge and achievement of organizational objectives. These premises define the assumptions and fundamentals of HRM practices.

In this context of changing HRM's view, Legge (1995) states that, in addition to seeking a different perspective to better treat employees, HRM is consolidated as a central activity of organizational strategic management, since individuals started to be considered for top management as the most important organizational resource to be managed, integrating them in the search for the achievement of the organization's goals. In this way, new roles, challenges and perspectives for HRM are born. Legge's ideas (1995; 2006) combined with those of Barney (1991) make up the conceptual framework of this study.

According to Armstrong (2014) and Bohlander and Snell (2009), it can be concluded that the area of human resources in organizations assumes an essential strategic role, insofar as people are the protagonists for the execution of the services of organizations, as well as the producers of knowledge, innovation and organizational skills. According to Ulrich et al. (1991), the latter results from the redefinition and redistribution of policies, practices, functions and HR management professionals.

Based on the idea that HR management must be at the strategic level of the organization, Legge (1995; 2006) conceptualizes Strategic Human Resource Management (SHRM) as the management of relationships with employees, seeking to contribute as much as possible with the reach organizational goals and objectives. Legge (1995) proposes that SHRM theories can be grouped into two versions: hard and soft. The hard version emphasizes the qualitative and calculative issues of HRM, considering individuals as another economic resource of the company: "It would be the *management of* human *resources*" (Demo, 2016, p. 121). In the soft version, there is the idea of treating employees through communication, motivation and leadership. "In this case, we talk about *human resource* management" (Demo, p. 121, 2016). This soft view laid the foundation for the formalization of SHRM.

Following in the context of aligning HR management with organizational strategy, we find the term “Human Resources practices”. According to Morris and Snell (2010), in the context of SHRM, HRM policies and practices act together to achieve the organization's objectives. Martín-Alcázar, Romero-Fernández and Sánchez-Gardey (2005), seeking to differentiate these two concepts, conclude that: (i) SHRM coordinates the workforce management; (ii) policies direct practices so that they are coherent and follow the same path; and (iii) the practices represent the effective actions.

In this context, several studies have been carried out for this, including Legge (2006) and Adebisi and Oladipo (2015), which corroborate the idea that HRM practices generate positive consequences for organizational performance, at the levels: individual, group and global (Lacombe & Tonelli, 2001).

Considering the relevance of the SHRM theme and the resulting need to validate scientific instruments to assess the perception that employees have regarding the practices implemented by the organization, Demo (2008) developed and validated a instrument to measure the perception that employees had in regarding organizational practices. After going through the methodological procedures, the HRMPP was reached, which has 19 items, divided into four factors (involvement; training, development & education; work conditions and rewards).

Demo's HRMPP (2008) was the pioneer scale in Brazil in the context of assessing the perception of employees in relation to the organizational practices of HRM. Years later, Demo, Neiva, Nunes and Rozzett (2012) developed and validated the Human Resources Policy and Practice Scale (HRPPS), which resulted in the updated version of the HRMPP. HRPPS used the four policies mentioned in the HRMPP and added two more: Recruitment and Selection; and Performance and Skills Assessment. After the methodological path, a scale with 40 items was found, grouped into 6 subscales. Then, Demo and Rozzett (2012) performed the cross-cultural validation of EPPRH in the United States, which decreases to 32 items, maintaining the 6 dimensions.

After the HRPPS, a gap was identified in the literature: there was no specific human resource practices scale for the public sector, and this work sought to fill this gap with the public HRMPS. This will be based on the same 6 dimensions of the HRPPS, namely: Recruitment and Selection (RS); Involvement (I); Training, Development & Education (TD&E); Work Conditions (WC); Competency Based Performance Appraisal (CBPA) and Compensation and Rewards (CR).

Table 1 presents the selected practices and their main authors. According to Pasquali (1999), the constitutive definition is extremely important for the construction of measurement instruments, it is the one that usually appears as a definition of terms in dictionaries and theories, in which concepts are defined in terms of other concepts. The dimensions and practices considered in this paper were based on, aiming at the theoretical alignment: (i) state of the art built by Demo (2012); (ii) studies by Demo and collaborators (2012; 2014) to develop and validate the HRPPS; and (iv) study by Demo (2016).

Table 1
Constitutive Definition of Selected HRM Practices and their Key Authors

Recruitment and Selection (RS)	
Constitutive Definition	Articulated proposal of the organization, with theoretical and practical constructions, to look for employees, encourage them to apply and select them, seeking to harmonize the values, interests, expectations and competences of the person with the characteristics and demands of the position and the organization.
Authors Reviewed	Dessler (2002); Mathis and Jackson (2003); Armstrong (2014); Bohlander and Snell (2009).
Involvement (I)	
Constitutive Definition	Articulated proposal of the organization, with theoretical and practical constructions, to create an affective bond with its collaborators, contributing to their well-being, in terms of recognition, relationship, participation and communication.
Authors Reviewed	Ulrich et al. (1991); Sisson (1994); Dessler (2002); Mathis and Jackson (2003); Muckinsky (2004); Siqueira (2008); Bohlander and Snell (2009); Dietz, Wilkinson and Redman (2010).
Training, Development & Education (TD&E)	
Constitutive Definition	Articulated proposal of the organization, with theoretical and practical constructions, to provide employees with the systematic acquisition of skills and stimulate continuous learning and knowledge production.
Authors Reviewed	Goldstein (1996); Sisson (1994); Dutra (2001); Dessler (2002); Borges, Andrade, Abbad, Mourão (2006); Bohlander and Snell (2009).
Work Conditions (WC)	
Constitutive Definition	Articulated proposal of the organization, with theoretical and practical constructions, to provide employees with good work conditions in terms of benefits, health, safety and technology.
Authors Reviewed	Sisson (1994); Osborn, Hunt and Schermerhorn (1998); Dessler (2002); Mathis and Jackson (2003); Armstrong (2014); Bohlander and Snell (2009); Loudoun and Johnstone (2010).
Competency Based Performance Appraisal (CBPA)	
Constitutive Definition	Articulated proposal of the organization, with theoretical and practical constructions, to evaluate the performance and competences of the collaborators, subsidizing the decisions about promotions, career planning and development.
Authors Reviewed	Dutra (2001); Dessler (2002); Mathis and Jackson (2003); Bohlander and Snell (2009).
Compensation and Rewards (CR)	

Constitutive Definition	Articulated proposal from the organization, with theoretical and practical constructions, to reward employees' performance and competencies in terms of compensation and incentives.
Authors Reviewed	Sisson (1994); Dutra (2001); Martins (2008); Bohlander and Snell (2009); Gerhart (2010).

Source: adapted from Demo et al. (2014) and Demo (2016).

3. METHOD

3.1. Scale Development

According to Kerlinger and Lee (2008), one of the steps to develop a scale is to perform a qualitative analysis. To support the elaboration of the Public HRMPS items, the HRPPS items validated by Demo, Neiva, Nunes and Rozzett (2012) were considered. Then, the theoretical analysis of the items was performed, including the analysis of judges and the semantic analysis.

In the analysis of judges, ten public employees from two different public institutions were invited, in which each of the specialists judged whether the item was pertinent to HRM practices and indicated, if possible, to which practice each item corresponded. For this stage the Public HRMPS had 44 items and six practices, the same as the HRPPS, namely: Recruitment and Selection; Involvement; Training, Development & Education; Work Conditions; Competency Based Performance Appraisal; e Compensation and Rewards. It is noteworthy that this number of experts is in agreement with Kerlinger and Lee (2008), which determines that an analysis of judges must be composed of at least 6 judges.

From the version resulting from the analysis of judges, we proceeded to the semantic analysis, which aims to verify whether the wording of the items on the scale is clear, as well as to present doubts that could appear at the time of application of the questionnaire. This avoids, according to Kerlinger and Lee (2008), the lack of understanding of participants when they are responding to the research instrument. For this analysis 40 public employees were invited.

For both analyzes of the qualitative stage, the minimum agreement of 80% between the judges was respected as the decision criterion as to the relevance/exclusion/inclusion/reformulation of a given item to the objectives of the scale, according to the recommendations of Kerlinger and Lee (2008).

3.2. Scale validation

After analyzing the qualitative step for the development of Public HRMPS, the questionnaire was ready for application, containing 31 items that were randomized to avoid bias (Kerlinger & Lee, 2008). Google Docs was used to make Public HRMPS available to public employees of a public institution via institutional email. Data collection returned 394 questionnaires.

For the analysis of missing values, the listwise procedure was used, which, according to Tabachnick and Fidell (2012), deals with the elimination of questionnaires that had at least one blank item. In this study, 21 missing values were found, which were eliminated, totaling 373 questionnaires.

Then, the analysis was performed for the presence of outliers. Outliers are found values that differ considerably from the average data. According to Tabachnick and Fidell (2012) recommendations for this step, the Mahalanobis method was used. According to the chi-square table (χ^2), with a significance index $p<0.001$ and considering the 31 items of the online application version to public servants, the value $\chi^2 = 61.098$ was obtained. Thus, 29 outliers were eliminated. Thus, a final sample of 344 subjects was obtained.

Subsequently, multicollinearity and singularity analysis were performed. No deviation was found, as tolerance values were greater than 0.1 and Variance Inflation Factor (VIF) was less than 5.0 (Hair et al., 2009).

Finally, as established by Hair et al. (2009) and Field (2009), proceeded to the analysis of the assumptions for the use of multivariate analysis. Therefore, normal probability plots and

residual plots were generated to verify normality, linearity and homoscedasticity of the data. All assumptions have been confirmed.

The final sample consisted of 344 subjects, which formed two different random samples, one for Exploratory Factor Analysis, containing 344 questionnaires, and another for the Confirmatory Factor Analysis, containing 240 questionnaires.

According to Tabachnick and Fidell (2012), the sample size for EFA should include at least 300 individuals and suggests, as a rule, between 5 and 10 subjects per questionnaire item. For the CFA sample, Hair et al. (2005), Byrne (2009) and Kline (2011) indicate between 10 and 20 subjects per item. Thus, both samples used are in accordance with the recommendations in the literature.

Psychometric validation of the proposed scale was performed by principal component analysis, followed by Exploratory Factor Analysis (EFA), using the Statistical Package for Social Sciences (SPSS) software (Hair et al., 2009; Field, 2009). Then, we started to define the number of factors of the Public HRMPS, considering the following criteria: (i) eigenvalues; (ii) scree plot chart; and (iii) the parallel analysis (Field, 2009).

After defining the number of factors of the Public HRMPS, exploratory factor analysis or principal axis analysis with Promax oblique rotation began. Cronbach's alpha was used as an index of reliability, accuracy or internal consistency of a scale (Cronbach, 1951; Cortina, 1993).

In order to verify the fit of a SEM model, the following indices were used: normed $\chi 2$ value (NC, or CMIN/df, where CMIN is the $\chi 2$ statistic and DF are the model's degrees of freedom), CFI (Comparative Fit Index) and RMSEA (root mean square error of approximation), as recommended by Hair et al. (2009) and Kline (2011).

Subsequently, the reliability of the version obtained after CFA from the Public HRMPS was analyzed by Jöreskog's rho (ρ), which is, according to Chin (1998), a more recommended reliability measure than Cronbach's alpha for confirmatory analysis, as factor reference is used, not the observed correlations between variables.

4. RESULTS

4.1. Scale Development

In the qualitative study, the adaptation of HRPPS already validated by Demo et al. (2012) to assess workers' perceptions of HRM practices applied in the organization using analysis of judges and semantic analysis (Pasquali, 2010). The compilation of HRPPS items by Demo et al. (2012) constituted the initial version of the Public HRMPS with 44 items, which was first submitted to the analysis of ten judges, in which 14 items were deleted, 4 had their wording changed and 5 new items were added. It is noteworthy that among the excluded items are the items that make up the Recruitment and Selection, and Compensation and Rewards factors, because these items, in the public scenario, are defined and plastered by current legislation.

Then, semantic analysis was performed to verify the intelligibility of the instrument (Kerlinger & Lee, 2008). In this stage, 4 items were excluded, and 7 items had their wording modified.

In the end, the Public HRMPS had 31 items in its application version structured according to the Likert scale from 1 to 5, where 1 means totally disagree and 5 means totally agree, with 3 being the neutral point.

4.2. Scale Validation

4.2.1. Exploratory Factor Analysis

The results of the EFA proved the scale factorability. The result of the KMO index was 0.95, considered by Kaiser (1974) as "wonderful". Then, we started to define the number of factors of the Public HRMPS. The eigenvalues method greater than 1.0 indicated five factors, while the scree plot and parallel analysis indicated two factors.

Considering that the technique of parallel analysis is accurate in 92% of cases according to Horn (1965) and Laros (2004), the scree plot in 57% of cases and eigenvalues criterion is 22%, it was determined to use two factors for the Public HRMPS. As a minimum acceptable factor loading, a value of 0.40 was determined. Thus, eleven items of the application version were not accepted. The Public HRMPS version after EFA had 20 items, divided into 2 factors (subscales), "Involvement" and "Work Conditions".

According to the items in factor 1, it was proposed the name "Work Conditions" which refers to the set of human resource management practices that aim to provide resources, training, good physical condition and social welfare to the employees. The "Involvement" factor was named as a set of human resource management practices that seek to motivate, involve and promote the personal and professional development of employees. These concepts are consistent with the original HRPPS definitions of Involvement and Work Conditions, but broader, as Work Conditions practice focuses not only on the physical conditions but also on the psychological and welfare conditions of employees. The Involvement practice, in turn, adds items related to performance evaluation and server development.

It was used as a reference to evaluate the quality or its internal validity the classification proposed by Comrey and Lee (2013), which are: (i) negligible (load less than 0.3); (ii) poor (load equal to or greater than 0.32 and up to 0.44); (iii) reasonable (load equal to or greater than 0.45 and up to 0.54); (iv) good (load equal to or greater than 0.55 and up to 0.62); (v) very good (load equal to or greater than 0.63 and up to 0.70); and (vi) excellent (load equal to or greater than 0.71). Thus, the Public HRMPS presented two factors, "Work Conditions" with 11 items and "Involvement" with 9 items. Finally, 7 items were “excellent”, 4 “very good”, 6 “good” and 3 “reasonable”.

The item reliability analysis was performed resulting in a Cronbach's alpha of 0.89 for the "Involvement" factor, and 0.87 for the "Work Conditions" factor. According to Cortina (1993), Cronbach's alpha is a good index of reliability, accuracy or internal consistency of a scale. According to Nunnally and Berstein (1994), alpha results above 0.70 are considered reliable and above 0.80 very reliable. Alphas of Public HRMPS factors are thus classified as very reliable. Table 2 contains the main information regarding the factor loadings of each item of the Public HRMPS.

Table 2
Factor Loadings of Public HRMPS Items

Wording	I	WC	Quality
Human resource management practices in the organization where I work motivate employees to do their best.	,2		Excellent
In the organization where I work, there is consistency between the speech and practice of managers/bosses.	,5		Excellent
In the organization where I work, performance appraisal assists in developing a professional development plan for employee.	,2		Excellent
In the organization where I work, there is trust between the servers and the managers/bosses.	,5		Excellent
The organization where I work seeks to meet the professional expectations of employees.	,1		Excellent
In the organization where I work, managers/supervisors accompany the adaptation of employees at the beginning of their positions and functions.	.69		Very good
In the organization where I work, employees receive informal feedback on their performance.	.67		Very good
The organization where I work encourages the participation of employees in decision making.	.65		Very good
The organization where I work invests in the development of employees, providing their professional growth (e.g.: full or partial sponsorship of undergraduate, postgraduate, language courses, further education, continuing education, etc.).	.48		Reasonable

The organization where I work has quality of life programs for the employees (e.g.: flextime, gymnastics, etc.).		5	Excellent
The organization where I work provides living spaces and/or convenience services (e.g.: parking lots, banks, restaurants/diners, etc.).		3	Excellent
The organization where I work cares about the welfare of the employees.		8	Very good
The organization where I work offers basic benefits (e.g.: health insurance, etc.).		8	Good
The organization I work for is concerned with the security of your employees (e.g.: stranger access control, badge requirements, etc.).		8	Good
The organization where I work treats its employees with respect.		8	Good
The organization where I work provides the employees with technology (materials, software and hardware) appropriate to the performance of their functions.		5	Good
The facilities and physical conditions of the workplace (e.g.: lighting, ventilation, noise and temperature) are adequate.		5	Good
The organization where I work helps employees to develop the skills needed to carry out the activities (e.g.: training, participation in congresses, etc.).		5	Good
In the organization where I work, the training actions are evaluated by the trainees.		2	Reasonable
In the organization where I work, the employees have the information necessary to perform the activities.		0	Reasonable
Cronbach's Alpha (α)	.89		
Number of Items	9		
Total Variance Explained			43,9%

Source: elaborated by the authors, 2020.

4.2.2. Confirmatory Factor Analysis

For the Confirmatory Factor Analysis of the Public HRMPS, through Structural Equation Modeling (SEM), the maximum likelihood estimation method was used the Amos software that is linked to the SPSS. This method was used because, according to Hair et al. (2009), is the most widely used estimation method in SEM, as it is more robust to normality violations and also because it is to be used in different sample sizes (Hair et al., 2009). For this stage, a sample of 240 subjects was used.

In order to verify the fit of a SEM model, indices are used, requiring the researcher to use at least one incremental and one absolute index, in addition to the chi-square value and associated degrees of freedom. A model showing the normed $\chi 2$ value (NC, or CMIN/df, where CMIN is the $\chi 2$ statistic and DF is the model's degrees of freedom), CFI (Comparative Fit Index), and RMSEA (Root Mean Square Error of Approximation) will have enough data so that, according to Hair et al. (2009), a researcher continues his/her evaluation.

Therefore, the analysis of the global fit of a model to the investigated sample can be directed by means of an absolute fit indicator, which uses the $\chi 2$ (NC) statistic and the RMSEA statistic, which is also characterized as an index of poor fit quality (higher values indicate poor fit), and which better portrays the extent to which a model fits not only a population but also a sample used for estimation (Kline, 2011). The study researcher should also use an incremental adjustment indicator, such as the CFI, which is one of the most widely used indices, as it has the characteristic of being more insensitive to the complexity of the models (Hair et al., 2009).

In this context, according to Kline (2011), the recommended values for a structural or measurement model should be: (i) for NC (CMIN/DF) the value should be between 2.0 and 3.0 and at most up to 5.0; (ii) for CFIs equal to or greater than 0.90; and (iii) for RMSEA the values must be less than 0.06 or up to 0.08.

In order to verify the dimensions of the Public HRMPS, both the one-factor model and the two-factor model were tested, which is in accordance with Byrne's (2009) parsimony

recommendations. When comparing the two results, it appears that the one-factor model exhibited worse indices than the two-factor model, as shown in Table 3 below.

Table 3
Public HRMPS Confirmatory Factor Analysis Adjustment Indices

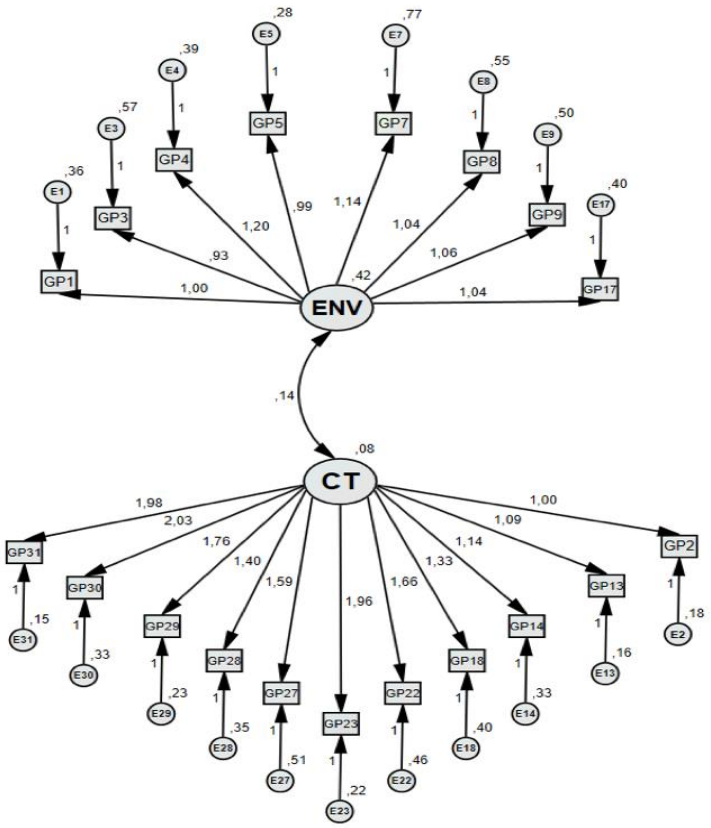
Parameters	Reference (Kline, 2011)	One factor	Two factors
NC (χ^2/DF)	< 3,0	3,29	1,70
CFI	≥ 0,90	0,81	0,95
RMSEA	<0,08	0,09	0,05

Source: elaborated by the authors, 2020.

These data confirm, therefore, that the two-factor structure presented a better fit, since all values are in accordance with the recommendations of Kline (2011).

Then, the factor loadings of the confirmatory validation of 20 items were verified and only item 10, "The organization where I work invests in the development of employees, providing their professional growth", had the factor loading of less than 0.5. Thus, it was decided to remove this item from the model (Hair et al., 2009). In total there were 7 "excellent", 4 "very good", 6 "good" and 2 "reasonable" items, according to the classification of Comrey and Lee (2013).

Figure 1 shows the final model of measurement of Public HRMPS from the CFA, with the respective parameters.



Public HRMPS Confirmatory Analysis Model
Note: χ2(240) = 257,23; NC=1,70; CFI=0,95; RMSEA=0,05; SRMR=0,06.
Source: elaborated by the authors, 2020.

Then, the construct validity of the Public HRMPS covering convergent and discriminant validity was tested. According to Hair et al. (2009), the validity of a construct verifies how

much a group of measured items represents the theoretical construct that these items should measure, being evaluated by convergent and discriminant validity.

The first validity tested, the convergent one, is related to the degree of agreement between two or more measurements of the same construct, and these intercorrelations of the items must be at least moderate, i.e., above 0.3 (Cohen, 1992; Hair et al., 2009; Kline, 2011). Thus, one of the signs of convergent validity used is the factor reliability (Hair et al., 2009), which in the case of Public HRMPS, for both factors, was above 0.8, thus indicating internal consistency and reliability. Another convergent validity indicator agreed in the literature is related to factor loadings, which must be greater than 0.5. It can be stated that the Public HRMPS met this criterion in all items. The only item that had a load lower than 0.5, item 10, was disregarded in the Confirmatory Factor Analysis. Regarding the variance extracted, Hair et al. (2009) recommend that their values be close to 0.5. The variance extracted from the "Involvement" factor was 0.5 and that of the "Work Conditions" factor was 0.4. Therefore, it can be said that the Public HRMPS has convergent validity, but there is a need for future improvements, through changes in scale, to improve the variance extracted from the "Work Conditions" factor.

Discriminant validity refers to the extent to which a measure does not correlate with other measures from which it is supposed to differ (Sánchez, 1999). Discriminant validity is revealed when the estimated extracted variance value of each factor exceeds the square of the correlation between them (values below diagonal), according to the Fornell-Larcker criterion (Hair et al., 2009), for which one latent construct should explain the measurement of its items better than another construct (Table 4).

Table 4
Public HRMPS Discriminant Validity

Factor	Involvement	Work Conditions
Involvement	0,5ª	-
Work Conditions	0,02	0,41ª

Note: ª Variance Extracted.
Source: elaborated by the authors, 2019.

Thus, it is possible to state that the Public HRMPS has internal validity, reliability, content/theoretical validity and construct validity and can be used as a scientific diagnosis of the perception of public employees regarding the human resource management practices implemented by their organizations.

The final version of Public HRMPS was therefore composed of 11 items divided into 2 factors. The "Involvement" factor was 8 items (α=0.89 and ρ=0.89) and the "Work Conditions" factor was 11 items (α=0.87 and ρ=0.88). In all there were 7 "excellent", 4 "very good", 6 "good" and 2 "reasonable" items, according to the classification of Comrey and Lee (2013). The total variance explained was 43.9%.

Although the items of the Public HRMPS originate from previously validated models, which have already passed previous validations, it was decided to conduct a new theoretical analysis, given that some of the items underwent changes, new ones were included and the factorial structure obtained was different for the context of the public service. Thus, we proceeded to verify the content validity of the items that make up the factors identified "Work Conditions" and "Involvement", to ratify the theoretical support of each item of the Public HRMPS.

Starting the analysis with item 4, the most representative of the construct, since it has the highest factor load (0.92), it can be verified that it discusses if the organization's HRM practices generate motivation in the employees, a relevant aspect for the human resources management (Ulrich, 2001), given the idea that HRM practices should, as a matter of priority, involve employees towards the organization, motivating them to do their work. Arguments

about the effect of HRM practices on employees are also highlighted by Sisson (1994) and Dessler (2002).

Items 1, 5, 7, 8, 9, 10, and 17 are in agreement with the idea that an organization that seeks to encourage the strength, performance, and motivation of its employees needs to take special account of planning and implementation of Involvement practices, seeking to: (i) invest in employee development, enabling greater professional growth; (ii) encourage communication between employees and bosses, seeking to meet the professional expectations of employees; (iii) perform performance appraisals to facilitate the preparation of a professional development plan for employees; (iv) preserve a climate of understanding and trust among colleagues and bosses; (v) grant autonomy to employees in performing tasks and making decisions; (vi) ensure consistency between the speech and practice of managers; (vii) accompany employees in adapting new positions and functions; among others (Bohlander & Snell, 2009; Dessler, 2002; Dietz, Wilkinson, & Redman, 2010; Muckinsky, 2004; Siqueira, 2008; Sisson, 1994; Ulrich et al., 1991; Mathis e Jackson, 2003; Jorgensen, 2003).

These ideas also include the following items: 23 (The organization where I work treats its employees with respect) and 29 (In the organization where I work, the employees have the information necessary to perform the activities). Adding that, according to the arguments of Sisson (1994), there must be a high degree of communication in all hierarchical senses, encouraging new ideas, suggestions and complaints from employees.

The ideas of Missel (2012) justify the theory of item 3 (In the organization where I work, employees receive informal feedback on their performance), while conceptualizing feedback as an exchange of observations and information between the manager and the employee about job performance. In this way, the manager encourages his/her employee to perform better in his/her activities. Feedback is therefore an important tool for HRM (Missel, 2012).

According to Mathis and Jackson (2003), an organization that provides good work conditions performs the following practices: (i) provides basic benefits such as health insurance; (ii) adopts security procedures; (iii) has disease and accident prevention actions and programs; (iv) provides ergonomic structures and materials for use; (v) motivate actions aimed at employee welfare; (vi) provides quality of life for servers, such as flexible hours; (vii) has living spaces and/or convenience services; among others. These arguments, added with Loudoun and Johnstone (2010), Ulrich (2001); Mathis and Jackson (2003), Muckinsky (2004); Siqueira (2008), Sisson (1994); Osborn et al. (1998); Dessler (2002) justify items 13, 14, 22, 27, 28 and 31.

Still on item 31 (The organization where I work concerns the well-being of employees), Paschoal and Tamayo (2008) conceptualize well-being at work as the predominance of positive emotions that the employee expresses in the workplace, besides the perception their development and achievement of goals. Thus, well-being at work deals with both affective (emotions and moods) and cognitive (perception of expressiveness and fulfillment) aspects. According to Ryan and Deci (2000), autonomy and the presence of positive relationships are two examples of basic psychological needs that, when satisfied, lead to well-being.

Item 30 (The organization where I work helps employees to develop the skills needed to perform the activities (e.g., training, participation in congresses, etc.), is in agreement with Dutra (2001), suggesting that the evolution of an individual within the organization is the result of his ability to perform jobs and assume more complex responsibilities, adding greater value to the company. According to Dutra (2001), these conducts direct the integration of HRM practices with each other and between the organization's strategy.

Item 2 (The organization where I work provides the employees with technology (materials, software, and hardware) appropriate to the job performance) is in line with the ideas of Haines (1999) and Greengard (1999), who verify the relationship between implementing appropriate technology in the workplace and increasing knowledge, productivity, performance and skills. Evidence suggests that, according to these authors, the employees of an organization are more efficient when working with the right technology.

Finally, item 18 (The organization where I work, the training actions are evaluated by the trainees) is in accordance with the ideas of Goldstein (1996) and Borges-Andrade et al. (2006), confirming the importance both having training and evaluating these programs which, through the systematic formation of attitudes, concepts, knowledge, rules and skills, result in an improvement in the performance of employees at work (Goldstein, 1996).

Table 10 shows the summary of theoretical support for Public HRMPS items. It is noteworthy that items 2, 3 and 4 originated in the qualitative part of this study, which also have theoretical support in the reviewed literature. Thus, the content validity of the Public HRMPS is attested (Hair et al., 2009).

Table 5
Theoretical Support for Public HRMPS Items

		Wording	Theoretical Support
4	I	Human resources management practices in the organization where I work motivate employees to do their best.	Qualitative study/Ulrich et al. (1991); Sisson (1994); Dessler (2002)
1	I	In the organization where I work, there is consistency between the speech and practice of managers/bosses.	Bohlander and Snell (2009)
7	I	In the organization where I work, performance appraisal assists in developing a professional development plan for employees.	Dessler (2002); Mathis and Jackson (2003);
5	I	In the organization where I work, there is trust between the employees and the managers/bosses.	Bohlander and Snell (2009)
17	I	The organization where I work seeks to meet the professional expectations of employees.	Ulrich et al. (1991); Jorgensen, 2003
9	I	In the organization where I work, managers/supervisors accompany the adaptation of employees at the beginning of their positions and functions.	Bohlander and Snell (2009)
3	I	In the organization where I work, employees receive informal feedback on their performance.	Estudo qualitativo/Missel (2012)
8	I	The organization where I work encourages the participation of employees in decision making.	Dietz et al. (2010)
10	I	The organization where I work invests in the development of employees, providing their professional growth (e.g. full or partial sponsorship of undergraduate, postgraduate, language courses, further education, continuing education, etc.).	Sisson (1994); Dessler (2002)
13	WC	The organization where I work has quality of life programs for the employees (e.g. flextime, gymnastics, etc.).	Loudoun and Johnstone (2010)
28	WC	The organization where I work provides living spaces and/or convenience services (e.g. parking lots, banks, restaurants/diners, etc.).	Ulrich (2001); Mathis and Jackson (2003)
31	WC	The organization where I work cares about the welfare of the employees.	Muckinsky (2004); Siqueira (2008); Paschoal and Tamayo (2008; Ryan and Deci (2000)
27	WC	The organization where I work offers basic benefits (e.g. health insurance, etc.).	Sisson (1994); Osborn et al. (1998); Dessler (2002); Mathis and Jackson (2003)
22	WC	The organization I work is concerned with the security of your employees (e.g., stranger access control, badge requirements, etc.).	Loudoun and Johnstone (2010)
23	WC	The organization where I work treats its employees with respect.	Muckinsky (2004); Siqueira (2008)
2	WC	The organization where I work provides the employees technology (materials, software and hardware) appropriate to the performance of their duties.	Estudo qualitativo/Haines (1999); Greengard, 1999
14	WC	The facilities and physical conditions of the workplace (e.g. lighting, ventilation, noise and temperature) are adequate.	Ulrich (2001); Mathis and Jackson (2003)

30	WC	The organization where I work helps employees to develop the skills needed to carry out the activities (e.g. training, participation in congresses, etc.).	Dutra (2001)
18	WC	In the organization where I work, the training actions are evaluated by the trainees.	Goldstein (1996); Borges- Andrade et al. (2006)
29	WC	In the organization where I work, the employees have the information necessary to perform the activities.	Sisson (1994)

Source: elaborated by the authors, 2020.

5. CONCLUSION

With regard to academic contributions, this study intended to fill a gap in relation to HRM practices that was not to have a customized scale of these practices for the public sector, which adds by its innovative character, given the dominance of related studies to human resources management practices in the private area Huselid (1995). In addition, this study explored advanced statistical methods for validating measures, which promoted greater validity and reliability at scale.

Despite the elaboration and validation of the Public HRMPS, which presented good psychometric indexes, can be used as a diagnostic tool to assist public managers in decision making regarding the effectiveness of HRM practices, it is important to emphasize that this research consisted of a first attempt to validate a scale of perception of human resource management practices for the public sector, so that the results are more indicative than conclusive, giving rise to new validations to confirm the structure obtained so far and provide evidence of external validity and generalization.

Another limitation is the fact that this study has a cross-sectional character. Future research is recommended to use longitudinal data and information. The application of Public HRMPS in other institutions, from the three spheres of power, is also important to verify its adequacy in different public contexts.

In addition, it is suggested to carry out new exploratory and confirmatory factor analysis in order to increase the adjustment indexes obtained, in addition to verifying external validity for the Public HRMPS, and improving the variance extracted from the "Working Conditions" factor, given that it was just below 0.50, an index considered ideal for the literature.

Our desire is that this study helps the dissemination of exploratory and, mainly, confirmatory factor analysis as important measurement and diagnostic techniques in the area of HRM. After all, operationally valid and reliable measures are fundamental for the construction of scientific knowledge that can be effectively applied in the organizational reality in such a way that the managers promote a fruitful management "of" and "with" people.

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