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HRM practices in the public service: a measurement model

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Abstract

Purpose – Considering the significant increase in researchers' interest in human resource management (HRM) in the public sector domain, this study aims to focus on producing a scale of HRM practices customized for the context of public organizations.

Design/methodology/approach – Experts and semantic analysis were performed for the scale development (qualitative stage), and exploratory and confirmatory factor analysis through structural equation modeling was conducted for the scale validation (quantitative stage).

Findings – The public HRM practices scale (public HRMPS) is composed of 19 items, distributed along four factors/dimensions, named training, development and education; relationship; work conditions; and competency and performance appraisal. The scale showed evidence of internal and construct validity (convergent, divergent, criterion-related and discriminant), as well as reliability and content validity.

Research limitations/implications – The public HRMPS can be applied in relational studies to test structural models of prediction, mediation and moderation to evaluate relationships with organizational behavior variables, such as leader-members exchange, engagement at work, life quality at work and well-being at work, among others.

Practical implications – The public HRMPS may also serve as a useful diagnostic tool for the decision-making process made by public managers so they can promote a strategic, evidence-based HRM. Furthermore, the transforming role of strategic HRM can be operationalized by adopting practices gathered in the public HRMPS, advancing toward new HRM strategies to promote healthier and more productive work environments.

Social implications – Healthier and more productive environments translate into real impacts for society, the first beneficiary of public services with more quality, efficiency and accountability.

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Originality/value – The public HRMPS is the first attempt to produce an operationally valid and reliable measure to evaluate strategic HRM practices, responding to calls in the literature concerning the need for an integrated, comprehensive and customized HRM practices scale for the public service context.

Keywords HRM practices, Measurement model, Public organizations

Paper type Research paper

Introduction

Over the past 30 years, there has been a growing consensus in the strategic human resource management (HRM) literature about the need to focus on integrating HRM practices (Boon, Den Hartog, & Lepak, 2019). Considering the rapid changes in the environment and the challenges posed by technology, globalization, political, economic and health crises, such as the recent COVID-19 pandemic (Buengeler, Leroy, & De Stobbeleir, 2018), organizations would benefit from flexible HRM practices that encourage engagement, appreciation and motivation (Aktar & Pangil, 2018) that provide the development of employee well-being and resilience to promote a healthier and more productive organizational environment (Cooke, Dickmann, & Parry, 2020).

Research in the field of HRM has mainly focused on private organizations, while public organizations, which play an equally crucial role in the economy, remain relatively unexplored (Al Damoe, Hamid, & Sharif, 2017). Blom, Kruyen, Van der Heijden, and Van Thiel (2018) explained that, due to a lack of focus on their specific context, several public organizations have adopted traditional HRM practices from private organizations, such as recruitment and selection, training and development, performance appraisal and payment/remuneration (Boxall & Purcell, 2016), despite significant differences between the public and private sectors, suggesting an important gap regarding HRM practices in public organizations.

In addition, there is a lack of literature on specific scales validated with specific HRM practices for the public service. The study by Knies, Leisink, & van de Schoot (2020) covered the public sector, but the aim was to develop a scale to assess the people management construct, defined by the authors as the implementation of HR practices by line managers and their leadership behavior oriented toward supporting the employees they supervise.

Similarly, Vermeeren (2014) had already studied the role of line managers in implementing HRM and the influence of employee perceptions of HRM. To measure HRM practices, the author used the system of high-performance HR practices proposed by Lepak, Liao, Chung, & Harden (2006), which includes practices such as recruitment and selection, training and development, performance appraisal and rewards. However, Vermeeren (2014) stated that these practices have been used in previous research in many different settings, so no standard measurement instrument was available. Therefore, we used several items from various measures and indices available in the literature (e.g. Gould-Williams, 2003; Wright & Haggerty, 2005), outlining an important gap in the field. This gap was originally pointed out by Huselid (1995) and has been an agenda proposed by many authors, such as Boon et al. (2019) and Knies et al. (2020).

This context calls for the development of a specific, customized scale to assess HRM practices from the perspective of civil servants, laying the foundations for the research problem proposed in this paper:

RQ1. How can we assess civil servants' perceptions of the HRM practices implemented by the organizations where they work?

Thus, our study aims to obtain evidence of the validity and reliability of a measurement model of HRM practices contextualized for public organizations to bring greater integration of HRM practices and the needs of such organizations. We believe that our study makes an

effective contribution by proposing the development of a reliable and valid scale of HRM practices tailored to the context of Brazilian public organizations.

Likewise, an important practical implication of this study is that it provides public managers with a tool to diagnose public employees' perceptions of the HRM practices implemented by their organizations. This diagnosis will contribute to strategic organizational planning to increase effectiveness in developing and implementing HRM strategies, policies and practices. Our focus on the Brazilian context, full of challenges in the public sector, especially concerning the alignment of HRM practices with the organizations' strategies and the general guidelines established by governments, makes our findings generalizable to similar contexts based on an adaptable cross-cultural application.

Theoretical framework

In a context of uncertainty and new challenges for organizations, it is imperative to rethink their organizational performance and policies, practices and societal impacts (Cooke et al., 2020). In the current scenario, characterized by a global crisis that goes far beyond health issues, affecting the political and economic environment and directly impacting organizations, promoting quality of life and sustainability is significant.

In line with this perspective, organizations seek to improve their capacity and processes through the development and management of human capital because people are key players in achieving results to the extent that they can learn, produce and share knowledge, use available resources and adapt to changes in the environment (Iqbal, Ahmad, Raziq, & Borini, 2019).

Thus, new roles, challenges and perspectives emerged, laying the foundations for what is known as strategic HRM (SHRM), which is considered to be the rethinking of HRM practices and activities strategically integrated with organizational objectives to leverage the organization's results. This facilitates the implementation of organizations' plans and resilience, taking into account environmental variables and the multiple actors involved (Boxall & Purcell, 2016). This conceptual proposal, aligned with the theory of resources (Barney, 1991), makes up the conceptual framework of this study, which is also based on the seminal studies by Guest (1987), Lepak et al. (2006) and Boxall, Purcell, & Wright, (2007).

To differentiate the concepts of strategy, policies and practices, which constitute the basic foundations of SHRM, Martín-Alcázar, Romero-Fernández, & Sánchez-Gardey, (2005) indicated that HRM strategies define guidelines for managing the workforce, while policies seek to coordinate practices so that they are coherent and move in the same direction; thus, practices represent the actions themselves. For this study, HRM practices are understood as the organization's articulated proposals regarding human relations to achieve the desired results (Demo et al., 2022).

Research indicates the importance of HRM practices as factors that lead to a series of significant results, such as employee satisfaction (Oikonomidou & Konstantinidis, 2020); lower employee turnover rates and increased organizational profitability (Sheehan, 2013); resilience at work (Costa, Demo, & Paschoal, 2019); organizational citizenship behaviors (Tinti, Venelli-Costa, Vieira, & Cappellozza, 2017); organizational performance (Bello-Pintado & Garcés-Galdeano, 2019); and organizational effectiveness (Otoo, 2020).

These associations demonstrate the solid predictive power of HRM practices on significant results desired by organizations and various organizational behavior variables. Thus, it is possible to state that HRM practices influence positive organizational behaviors because the more employees perceive practices that defend their well-being, the more they will feel satisfied and effectively connected to their work, thus contributing to greater organizational performance (Wu & Lee, 2017). This is true for both private and public organizations (Knies et al., 2020).

So, what motivates studying HRM practices in the public sector? First, the subject is traditionally less explored in the public than in the private sector (Blom et al., 2018).

Moreover, with the strong performance orientation in the public sector over the past two decades (Guest, 2017), HRM has gained notable prominence and popularity in public management research and, due to the complexity of public sector organizations, internally and externally, an adequate approach in which context matters has been increasingly demanded (Boselie, Van Harten, & Veld, 2021).

In this sense, Rainey & Jung (2010) argued that because many objectives and results of public companies are different from those of private ones, the measurement of HRM practices in the public sector needs to be customized, especially since some traditional HRM practices are governed by law in many countries. This is the case in Brazil, where recruitment and selection practices require passing a public test, and remuneration/pay is specified by law (Constitution of Brazil, 1998/2001). Therefore, there is a demand for studies to measure models relating to HRM practices in the public service, which inspired our proposal to develop the public HRM practices scale (public HRMPS).

As, in the Brazilian context, there are no measures of HRM practices validated for the public sector, we understand that proposing an initial model that assesses HR practices implemented based on employee perceptions could open up ways to move toward testing HR practices in a multilevel approach, which is a growing trend in the field (Dello Russo, Mascia, & Morandi, 2018). Furthermore, Wright & Nishii (2007) reinforced how employee perceptions are essential in understanding the relationship between HRM and organizational results.

The seminal model of HRM practices, first validated in Brazil (Demo, Neiva, Nunes, & Rozzett, 2012) and cross-culturally validated in the USA by Demo, Neiva, Nunes, & Rozzett, (2014), inspired the development of the public HRMPS items because, in addition to contemplating the Brazilian reality, it presented evidence of internal and external validity and reliability. Moreover, this model is comprehensive, encompassing the HR practices most cited in the literature (recruitment and selection; relationships; training, development and education (TDE); working conditions; competency and performance evaluation; and remuneration and rewards).

In addition, the model developed and validated by Demo et al. (2012, 2014) has been cited and used in recent research both in Brazil and abroad (e.g. Dello Russo, Mayrhofer, Caetano, & Passos, 2023; Resende & Neiva, 2021; Salman, Saleem, & Ganie, 2023; Tinti et al., 2017) and even in public administration publications (Telles, 2023).

Therefore, the Public HRMPS responds to calls from the field to focus more on a comprehensive measure not limited to individual HRM practices (Boon et al., 2019) and a contextualized (Blom et al., 2018) HRM practice measure. Apart from a few indexes of HRM practices identified by proponents of the high-commitment and high-performance approach (e.g. Pfeffer, 2005), there is still a lack of more comprehensive and integrated models of HRM practices, as "many measures generate an oversimplified assessment of HR practices" (Knies et al., 2020, p. 706). In this vein, the measurement model validated here advances by testing an integrated, comprehensive and contextualized model of HRM practices tailored to public organizations, which delimits the opportunity and relevance of this proposal.

Methods

The design of this study is descriptive, exploratory, cross-sectional and multimethod. This section and the *Results* section are presented in two parts: scale development procedures (qualitative stage) and scale validation procedures (quantitative stage).

Scale development: qualitative step

At this stage, expert analysis and semantic analysis were carried out. Based on the literature and the seminal HRM practices model (Demo et al., 2012, 2014), the initial version of the

public HRMPS was prepared and first submitted to expert analysis to validate whether the items are relevant to HRM practices in a public organization (Kerlinger & Lee, 2008).

Following the recommendation that at least six experts take part in this stage (Kerlinger & Lee, 2008), ten civil servants who are experts in HRM were consulted using the focus group technique. As well as checking the relevance of the items, the experts were encouraged to allocate each item, if possible, to one of the six HRPPS dimensions. In this analysis, a minimum of 80% agreement between the experts was respected as a criterion for deciding on the scale items' relevance, exclusion, inclusion or reformulation (Kerlinger & Lee, 2008).

The final version of the expert analysis was followed by the semantic analysis, which aimed to check that the wording of the scale items was clear, as well as to anticipate any doubts that might arise when the questionnaire was administered, acting as a pretest (Kerlinger & Lee, 2008). With this analysis, it was possible to check for redundancy, similarity of items, sentence structure or any adaptation necessary to ensure the clarity of each item on the scale. As the participants in a semantic analysis or pretest must have a profile similar to that of the target audience (Kerlinger & Lee, 2008), the semantic analysis was carried out with 37 other civil servants. The product of the semantic analysis was the application version of the public HRMPS to be used in the quantitative stage.

Scale validity and reliability: quantitative step

At this stage, the target audience was civil servants, specifically professors from a public Brazilian university. The sample was characterized as nonprobabilistic for convenience, and data was collected by sending the questionnaire online via the Google Docs platform to the institutional professors' e-mail. The data was collected from August to October 2020. Regarding ethical considerations in research, the anonymity of respondents and the confidentiality of responses are guaranteed, according to the Brazilian National Health Council.

The total sample obtained for the quantitative study included 526 subjects and the data from the questionnaires were imported into the Statistical Package for Social Sciences. In the data cleaning stage, following the recommendation of Tabachnick & Fidell (2019), 46 items with missing data were removed using the listwise method. Then, the Mahalanobis distance was analyzed to identify outliers in the sample, and 23 questionnaires were eliminated, resulting in a final sample of 457 individuals.

Multicollinearity and singularity analyses were then carried out, and the assumptions for using multivariate analysis (normality, linearity and homoscedasticity of the data) were checked using normal probability plots and residual plots (Field, 2018). All assumptions were confirmed.

To validate the data, we used the recommendations of Tabachnick & Fidell (2019), who suggest that, for exploratory factor analysis (EFA), from 200 to 300 individuals should be employed; they also establish a rule of 5 to 10 subjects per questionnaire item. On the other hand, for sizing the sample for confirmatory factor analysis (CFA), Hair, Babin, Anderson, & Black, (2018) and Kline (2023) recommend 10 to 20 subjects per scale item.

Thus, the final sample, made up of 457 subjects, was divided as follows: 310 subjects from the total sample were randomly selected for the EFA, whereas the CFA comprised all 457 subjects from the final sample. Structural equation modeling (SEM) was used to check the fit of the proposed measurement model using the AMOS statistical program to carry out the CFA.

Concerning the profile of the sample, in both EFA and CFA, the majority of respondents were male (53%), aged between 35 and 44 (32%) and had worked at the university for between 6 and 10 years (32%).

Findings and discussion

Qualitative stage

Experts analysis. Ten experts evaluated the 44 items initially proposed for the public HRMPS. According to the criteria of Kerlinger & Lee (2008), considering a minimum of 80% agreement between the experts, 15 items were excluded, 4 were changed and 6 items were added.

In Brazil, recruitment and selection practices are characterized by impersonality in hiring, as they are decided through a public test. As remuneration and rewards are determined by law (Constitution of Brazil, 1998/2001), public managers have no discretion to make decisions in these areas. It was therefore decided, in agreement with the experts, to remove these two dimensions from the public HRMPS. In the end, 35 items were distributed into four factors (working conditions; relationships; skills and performance assessment; and TDE), which comprised the semantic analysis form.

Semantic analysis. A semantic analysis followed the expert analysis to resolve issues that arose from the first application of the survey instrument (Kerlinger & Lee, 2008). The forms were applied online to 37 civil servants, the target audience for the research. At this stage, 4 items were excluded, and 13 items were modified. Finally, the product of the qualitative study was the application version of the public HRMPS, containing 31 items to be evaluated using a five-point Likert scale of agreement.

Quantitative stage

Exploratory validation of the public HRMPS. First, to verify the feasibility of using factor analysis for the sample studied, i.e. its *factorability*, the correlation matrix was analyzed in terms of the sample adequacy index proposed by Kaiser–Meyer–Olkin (KMO). The KMO showed an index of 0.96, classified as "excellent", which confirms the communality between the variables and the factorability of the data matrix (Kerlinger & Lee, 2008).

Parallel analysis, increasingly consolidated in psychometric literature, was used to determine the number of factors for the scale without the influence of sample size and item factor loadings (Hayton, Allen, & Scarpello, 2004) and indicated four factors.

Next, EFA began with Promax oblique rotation because behavioral studies presuppose correlations between variables. To this end, a minimum acceptable load was set at 0.45 to retain only reasonable, good, very good and excellent items (Tabachnick & Fidell, 2019).

Thus, after the EFA, the public HRMPS was composed of 21 items: two excellent, six very good, six good and seven reasonable (Comrey & Lee, 2013). Eight items made up factor 1, three factor 2, seven factor 3 and three items made up factor 4 of the scale.

Based on the items in factor 1, the name TDE was proposed, which covers a set of human resource management practices aimed at providing and stimulating the acquisition of skills and the development of knowledge. Factor 2 was called *relationship*, which comprised practices aimed at stimulating civil servants' participation, autonomy and engagement, as well as motivating and involving employees in their work. The name we chose was supported by the experts who took part in the qualitative stage of the study. There is also theoretical support in the literature for these practices as this concept is close to *socialization* (Boxall & Purcell, 2016) or *employee autonomy and participation in decision-making* (Lepak et al., 2006; Vermeeren, 2014).

Referred to as *work conditions* (WC), factor 3 comprises practices aimed not only at physical working conditions but also at conditions related to the psychological well-being of civil servants. Finally, factor 4 was called *competence and performance appraisal* (APD), as these are practices related to evaluating civil servant performance.

These concepts are consistent with the definitions of Demo et al. (2014) and also with the suggestions proposed by Boon et al. (2019), which are training/development, participation/autonomy/communication (referring to what we call "relationship"); performance and evaluation (named "competence and performance appraisal"); and design/work safety (referring to what we called "work conditions").

The degree of scale reliability was calculated using Cronbach's alpha (α), a suitable parameter of the scale's accuracy or internal consistency (Hair et al., 2018). According to Nunnally & Bernstein (1994), results above 0.70 are considered reliable, and above 0.80 are very reliable. The alpha results obtained were 0.81 for TDE, 0.90 for *relationship*, 0.83 for WC and 0.77 for CPA. In addition, the total variance explained by the four factors was 60%, which can be assessed as a satisfactory result (Hair et al., 2018) because the study is exploratory and represents the first effort to measure HRM practices in public organizations.

Confirmatory validation of the public human resource management practices scale

To carry out the confirmatory validation of the scale, the method chosen was maximum likelihood estimation using SEM. On the other hand, it is necessary to analyze the model's fit to the empirical data to assess the quality of a structural equation measurement model. As stated by Hair et al. (2018), a model that presents the value of the normalized χ^2 value (NC, or CMIN/df, where CMIN is the statistic of χ^2 and df are the degrees of freedom of the model), the comparative fit index (CFI) and the root mean square error of approximation (RMSEA) has sufficient information for its evaluation.

According to Kline (2023) and Byrne (2016), the values that indicate a good fit for a structural model must meet the following criteria: values for NC (CMIN/DF) up to 5.0; values for CFI equal to or greater than 0.90; values for RMSEA equal to or less than 0.06 or up to 0.08. All the parameters were within the references indicated in the literature, so our model had a good fit index. Figure 1 shows the model after the CFA.

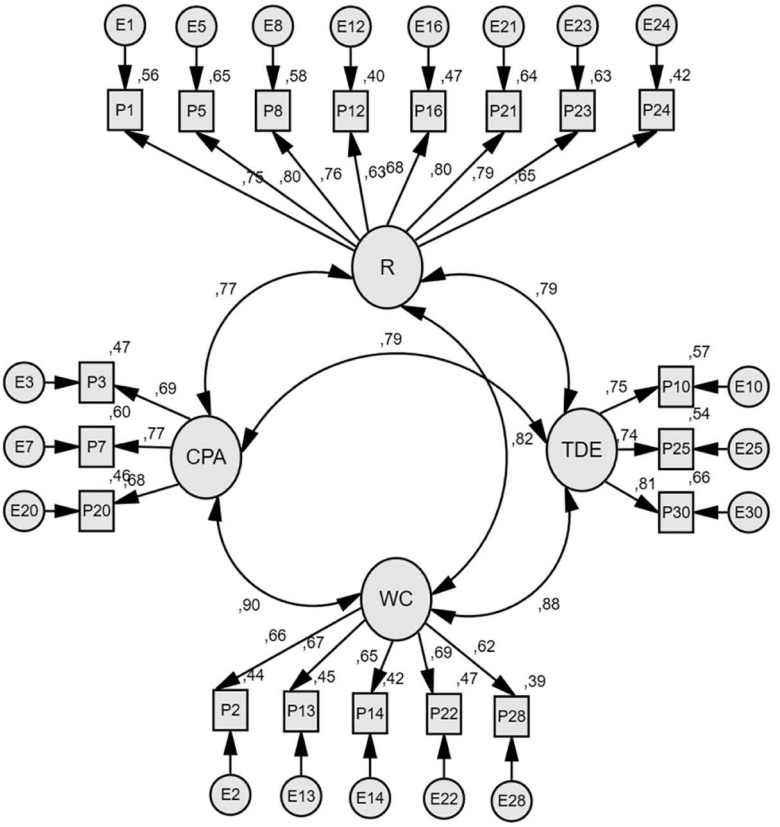
Compared to the initial exploratory structure, two items were eliminated because they had a factor loading below 0.55 (Hair et al., 2018). The final measurement model presented only very good and excellent items, attesting to its quality or internal validity (items with 9 excellent loadings and 10 very good loadings).

Jöreskog's rho is a more recommended measure of reliability because it is based on the factor loadings of the variables, while Cronbach's alpha uses the correlations between the items (Chin, 1998). The composite reliability of the four factors is as follows: *relationship* $\rho = 0.90$; TDE $\rho = 0.81$; WC $\rho = 0.79$; APD $\rho = 0.76$. Therefore, all the factors were very reliable because they had values above 0.70 (Chin, 1998).

Table 1 shows the psychometric indexes of public HRMPS.

Next, the construct validity of the public HRMPS was tested using convergent, divergent, criterion-related and discriminant validity. Construct validity is considered the most fundamental form of validity for psychological instruments, as it verifies the extent to which a group of measured items represents the theoretical construct that these items should actually measure (Hair et al., 2018).

A scale has convergent validity when the factors that make it up are well represented (high factor loadings) by its items (Hair et al., 2018). From this perspective, the first indication of convergent indicator of the factors of a scale is the reliability of each factor, which must be above 0.7. Another convergence indicator is the factor loadings, which must



Notes: χ^2 (146) = 452.363; $p < 0.001$; NC(CMIN/DF) = 3.00; CFI = 0.93; RMSEA = 0.06
Source: Figure by authors

Figure 1.
Confirmatory factor analysis model

be above 0.55. Finally, the extracted variance of the factors must be above 0.4 (Hair, Hult, Ringle, & Sarstedt, 2014). All four factors of the public HRMPS showed extracted variance above 0.4, namely, *relationships* 0.54, TDE 0.59, WC 0.43 and APD 0.51. Therefore, the public HRMPS showed convergent validity.

Divergent validity identifies the degree to which the measures of conceptually distinct factors differ (Hair et al., 2018). According to the Fornell–Larcker criteria, there is divergent validity when the estimated value of the variance extracted from each factor exceeds the square of the correlations between them (Hair et al., 2018). Table 2 shows that the four factors of the scale are distinct, constituting independent subscales that can be used separately for diagnosis and management evaluation.

Next, nomological or criterion-related validity shows the scale's ability to behave in relation to other constructs, as predicted in the scientific literature (Hair et al., 2018). Studies affirm an association between HRM practices and organizational virtues (Ahmed, Rehman, Ali, Ali, & Anwar, 2018; Gomide, Vieira, & Oliveira, 2016). Furthermore, Luo & Chen (2010)

Table 1.
Public HRMPS psychometric indexes

Scale dimension	EV	CR	Item description	SE	UE	SE	*p*	Item quality
TDE	0.59	0.81	10. The organization where I work invests in developing public employees and providing their professional growth (e.g. full or partial sponsorship of undergraduate, postgraduate or language courses, improvement, continuing education, etc.)	0.75	1.01	0.06	***	Excellent
			25. In my work organization, training needs are raised periodically	0.74	0.95	0.06	***	Excellent
			30. The organization where I work helps the employees develop the skills necessary to carry out the work activities (e.g. training, participation in congresses, etc.)	0.81	1.00		***	Excellent
R	0.54	0.90	1. In the organization where I work, there is coherence between the discourse and the practice of managers/heads	0.75	1.00		***	Excellent
			5. In my workplace, there is trust between public employees and managers/bosses	0.80	1.07	0.06	***	Excellent
			8. The organization where I work encourages public employees' participation in decision-making	0.76	1.15	0.07	***	Excellent
			12. Public employees are proud to work in the organization I work for	0.63	0.70	0.05	***	Very good
			16. The organization where I work privileges the autonomy of public employees in performing the tasks	0.69	0.92	0.06	***	Very good
			21. In the organization where I work, there is a climate of cooperation between public employees	0.80	1.07	0.06	***	Excellent
			23. The organization where I work treats its employees respectfully	0.80	1.01	0.06	***	Excellent
			24. Public employees of the organization where I work are helpful	0.65	0.83	0.06	***	Very good

(*continued*)

Scale dimension	EV	CR	Item description	SE	UE	SE	p	Item quality
WC	0.43	0.79	2. The organization where I work provides public employees with appropriate technology (materials, software and hardware) for task performance	0.66	1.00		***	Very good
			13. The organization where I work has quality-of-life programs for public employees (e.g. flexible hours, workplace exercise, etc.)	0.67	0.98	0.08	***	Very good
			14. The facilities and physical conditions of the organization where I work (e.g. lighting, ventilation, noise and temperature control) are appropriate	0.65	0.92	0.08	***	Very good
			22. The organization where I work is concerned with the security of its public employees (e.g. control of access for strangers, badge requirements, etc.)	0.69	1.02	0.08	***	Very good
			28. The organization I work in provides living spaces and/or convenience services (e.g. parking lots, banks, restaurants/snack bars, etc.)	0.63	0.92	0.08	***	Very good
CPA	0.51	0.76	3. In the organization where I work, public employees receive informal feedback about their performance	0.69	1.00		***	Very good
			7. In the organization where I work, the performance evaluation helps elaborate a professional development plan for public employees	0.77	1.23	0.09	***	Excellent
			20. In the organization where I work, the results of the performance evaluation are communicated to public employees	0.68	1.13	0.09	***	Very good

Notes: EV = extracted variance; CR = composite reliability; SE = standardized error; UE = unstandardized estimates *$p < 0.001$
Source: Table by Authors

Table 1.

defined organizational virtues as a mechanism through which HRM practices lead to higher levels of positive behavior in the workplace, which is why organizational virtues should inspire HRM practices. Likewise, virtues constitute the core of organizational culture (Hofstede, 2001) and certainly influence the perception of HRM practices.

Therefore, to attest to the criterion-related validity, we correlated the averages of the answers given by the respondents for both measures (public HRMPS and organizational virtues scale (Gomide et al., 2016), a variable composed of two factors: good faith and trust). We applied Pearson's coefficient for this correlation analysis, which showed a positive and significant correlation (at the 0.01 level) of 0.75, classified as *strong* (Cohen, 2016).

Finally, to check for discriminant validity, we performed an EFA with the public HRMPS items and items from other different measures (Brakus, Schmitt, & Zarantonello, 2009) and observed whether the most representative items with the highest loadings were added to the same factor to which they should be conceptually loaded. Thus, an EFA was carried out with items from the public HRMPS and from a scale to assess organizational virtues (Gomide et al., 2016). The EFA showed that the items referring to HRM practices were grouped in factor 2, and those referring to organizational virtues were grouped in factor 1.

Consequently, we found that HRM practices, as measured by the public HRMPS, in addition to having divergent validity between its factors, have discriminant validity in relation to other possibly related constructs.

With the evidence of internal and construct validity/reliability, we provided theoretical support for each item of the scale to confirm its content validity (Hair et al., 2018). Items 10, 25 and 30 of the TDE factor align with Araujo, Abbad, & Freitas (2017), proving that it is imperative to involve managers in analyzing training needs and constructing instructional projects that promote improvements in the organization's overall performance.

Item 16, the most representative of the *relationship* factor, with the highest factor load (0.87), highlights the autonomy of civil servants in carrying out their activities. Autonomy brings the responsibility to achieve established goals and the feeling of pleasure at work (Winter & Alf, 2019).

The other items in this factor (1, 5, 8, 21 and 24) deal with important aspects of teamwork, such as trust between members and their superiors, cooperation and help between coworkers, as well as consistency of attitudes and participation in decision-making. Thus, an organization that seeks to encourage the motivation and performance of its employees needs to consider planning and implementing relationship practices to encourage communication between employees and managers, seeking alignment between discourse and practice. Besides, it should consider preserving a climate of understanding and trust between teams and granting employees autonomy in tasks and decision-making (Cooper, Wang, Bartram, & Cooke, 2019). In addition, relationship practices that promote an

Table 2.
Public HRMPS divergent validity

Factor	Relationship	Training, development and education	Work conditions	Competency and performance appraisal
Relationship	*0.54*[a]	–	–	–
Training, development and education	0.27	*0.59*[a]	–	–
Work conditions	0.25	0.34	*0.43*[a]	–
Competency and performance appraisal	0.19	0.24	0.25	*0.51*[a]

Note: [a]Extracted variance
Source: Table by authors

emotional bond and that privilege respect, a sense of belonging and pride in being part of the organization should be encouraged (items 12 and 23) (Kehoe & Wright, 2013).

As for WC, items 2 and 14 are related to physical, technological and safety conditions in the work environment and follow the ideas that employees need adequate technology (Guest, 2017) and a pleasant WC and environment to be physically, socially and emotionally healthy (Tiecher & Diehl, 2017). Thus, as items 13, 22 and 28 states, organizations should excel in environments that help promote health and quality of life at work, offering flexible benefit plans and workplace facilities and convenience (Prysmakova, Tantardini, & Potkański, 2019).

Finally, items 3, 7 and 20 are related to skills and performance appraisal and are HRM practices reinforced by Ghauri (2018), like feedback, understood as an essential tool for exchanging observations and information about work performance between the manager and employees. HRM practices enhance employees' skills and efficiency through existing performance appraisal, so managers should prepare CPA plans and criteria together with employees and widely disseminate appraisal results (Van Esch, Wei, & Chiang, 2016).

Implications, limitations and future research. Considering the significant increase in publications on HRM in the public sector domain within public management and public administration (Boselie et al., 2021), our research focused on producing a scale of HRM practices customized for the context of public organizations, responding to calls in the literature for the need for a comprehensive (Gould-Williams, 2003; Huselid, 1995; Wright & Haggerty, 2005), integrated (Boon et al., 2019; Wright & Nishii, 2007) and customized (Blom et al., 2018) HRM practices measure. Therefore, we believe that our study advances by proposing the development of a reliable and valid measurement model of HRM practices tailored to the context of public organizations. This is the study's main theoretical contribution.

In addition, it is interesting to know which specific practices affect other organizational behavior variables to a greater or lesser extent, so the multifactorial structure of public HRMS, with four independent dimensions, can be useful. In this sense, each subscale of the public HRMPS can be used to test future structural models to assess relationships with other variables of positive organizational behavior, such as leader-member exchange, engagement at work, quality of life at work, well-being at work and so on.

Furthermore, the public HRMPS is a useful diagnostic tool for public managers' decision-making because public employees' perceptions of the HRM practices employed by the organizations where they work will be known. This will enable action in areas where improvements are needed and move toward new HRM strategies to promote healthier and more productive working environments. In addition, the transformative role of strategic HRM can be operationalized by adopting practices brought together in the public PPMS.

As social implications, healthier and more productive environments translate into real impacts for society, which is the primary beneficiary of public services provided with greater quality, efficiency and responsibility. Strategic HRM needs to embrace the concept of sustainability. A sustainable organization has a flexible structure, with HRM practices that reflect ethical concerns and sustainability principles, encouraging participatory decision-making, diversity management and the promotion of high health and safety indicators in the workplace (Oliveira, Estivalete, Andrade, & Costa, 2017).

This work represents a first effort to develop and validate a measurement model to evaluate HRM practices in the context of public service, so the results obtained are more indicative than conclusive, constituting a first limitation of the research. In addition, convenience sampling also prevents any generalization of the results obtained because our study used only one data source and is therefore subject to the common-method variance problems. As a parsimony criterion (Byrne, 2016), we compared the unifactorial structure with the multifactorial structure of the scale. There would be common-method variance if

the one-factor model showed a good fit. As this did not happen, we can conclude that the common-method variance itself does not explain the results (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

Another limitation is due to the cross-sectional design, as questions relating to causality remain unanswered. In this sense, testing the public HRMPS and its antecedents and consequences in a longitudinal framework would provide more information on probable causality. Furthermore, using longitudinal data will allow the public HRMPS to be constantly and continuously updated and refined, covering new HRM trends, challenges and possibilities for public institutions. Another suggestion for future research is to compare the views of managers and colleagues to get a more accurate picture of the perceptions and effects of HRM practices at different organizational levels.

We also encourage incremental validity testing to see how our scale helps predict additional variance in organizational and individual outcomes compared to other common predictors, such as leadership. Another interesting agenda would be validating the public HRMPS in different samples to provide external validity in different government and public authority spheres.

The seminal versions that inspired our scale (Demo et al., 2012, 2014) referred to the factor we call *relationship* as *involvement*, but we made this change primarily not to confuse it with the construct *involvement at work*, which would represent a reaction of employees to HRM practices rather than a set of practices. The name *relationship* was approved by the experts in the qualitative stage of the study, and this factor loadings and reliability were the highest on the scale, which confirms its representativeness in the HRM practices construct. Nonetheless, considering that this factor brings together practices of autonomy, participation and socialization, which may sometimes be confused with indicators of other constructs, such as work climate, we suggest future scale validations to enhance the content validity of this specific factor.

Finally, as our sample was restricted to professors at a public university, future research could include other careers at public universities, such as administrative staff and even samples with civil servants from other organizations.

Conclusion

Despite the limitations discussed, we can conclude that the main objective of this study has been achieved and that an instrument to assess public employees' perceptions of HRM practices has been presented innovatively in the context of the public sector. The public HRMPS is an operationally valid and reliable measure to be used as a diagnostic tool to support public managers who are increasingly interested in implementing HRM practices that respect the specificities of the public sector in their decision-making so that they can promote evidence-based strategic HRM.

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Data availability statement

Research data are not shared.