



MESTRADO EM GESTÃO DO POTENCIAL HUMANO

**Training and job satisfaction in the public sector: A sequential  
mediation model on competencies, performance  
appraisal and career progression**

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Lisboa

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## Resumo

A compreensão dos fatores que influenciam a satisfação profissional dos trabalhadores da Administração Pública (AP) é essencial para promover ambientes organizacionais mais produtivos e saudáveis. Através de um modelo de mediação sequencial, pretendeu-se investigar o papel da aquisição de competências, dos resultados da avaliação de desempenho (AD) e das oportunidades de progressão na carreira, na relação entre a formação e a satisfação profissional. A amostra foi constituída por 340 trabalhadores da AP com idades compreendidas entre os 20 e os 65 anos. Este estudo, de carácter transversal, seguiu uma abordagem quantitativa para analisar as relações entre as variáveis e testar as hipóteses formuladas. Os dados foram recolhidos através de um inquérito por questionário, aplicado a uma amostra de conveniência. A análise da mediação revelou que a formação impacta a satisfação profissional de forma indireta, ao fomentar o desenvolvimento de competências que contribuem para uma melhor avaliação do desempenho e, conseqüentemente, facilitam a progressão na carreira. Estes resultados destacam a relevância de implementar estratégias organizacionais que incentivem oportunidades de formação em consonância com os planos de crescimento e os sistemas de AD.

**Palavras-chave:** formação, aquisição de competências, resultados da avaliação de desempenho, progressão na carreira, satisfação profissional, mediação em série.

## Abstract

Understanding the factors that influence job satisfaction among public administration employees is essential to fostering healthier and more productive work environments. This study investigates the role of competency acquisition, performance appraisal (PA) outcomes, and career progression opportunities in the relationship between training and job satisfaction, through a sequential mediation model. The sample consisted of 340 public sector employees aged between 20 and 65 years. A cross-sectional, quantitative design was employed to analyse the relationships among the variables and test the proposed hypotheses. Data were collected using a structured questionnaire administered to a convenience sample. The mediation analysis revealed that training influences job satisfaction indirectly by promoting the development of competencies that contribute to improved PA results, which in turn facilitate career advancement. These findings highlight the importance of implementing organisational strategies that align training with transparent performance evaluation systems and career development plans, offering valuable guidance for public human resource policies aimed at strengthening institutional efficiency.

**Keywords:** training, competency acquisition, performance appraisal, career progression, job satisfaction, sequential mediation.

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## **List of acronyms and abbreviations**

AMOS	-	Analysis of Moment Structures
AVE	-	Average Variance Extracted
B	-	Unstandardized beta
CFA	-	Confirmatory Factor Analysis
CFI	-	Comparative Fit Index
CI	-	Confidence intervals
CR	-	Composite Reliability
HI90	-	Higher bound at 90%
HRM	-	Human Resource Management
LO90	-	Lower bound at 90%
M	-	Mean
Max	-	Maximum
Min	-	Minimum
MSV	-	Maximum Shared Variance
p	-	p-value
PA	-	Performance appraisal
NPM	-	New Public Management
PSM	-	Public Service Motivation
RMSEA	-	Root Mean Square Error of Approximation
SD	-	Standard-deviation
SE	-	Standard error
SIADAP	-	Integrated Performance Management and Appraisal System for Public Administration
SRMR	-	Standardized Root Mean Square Residual
TLI	-	Tucker-Lewis Index
$\chi^2/df$	-	Chi-Square/ Degrees of freedom

## **Introduction**

Job satisfaction among public administration employees has been widely discussed as a key factor influencing the efficiency and quality of services delivered to society (Lekić et al., 2019). The recognition of professionals, adequate working conditions, and the availability of development opportunities are fundamental aspects that directly affect organisational performance and talent retention in the public sector (Steil et al., 2022). In this context, several studies (e.g., Demircioglu, 2020; Gomathy et al., 2022; Rezmer, 2023) highlight that job satisfaction is central to human resource management and has a direct impact on employee productivity and well-being, thus requiring an integrated and multidimensional understanding.

In the specific case of public administration, identifying the drivers of job satisfaction becomes even more relevant due to the complexity of labour relations, the bureaucratic constraints, and the growing societal expectations regarding service delivery (Thant & Chang, 2020). According to Rodrigues et al. (2023), in the private sector, financial incentives and market competitiveness are major determinants of employee satisfaction. However, in the public sector, stability, professional recognition, and meaningfulness of work appear to be more significant (Barbieri et al., 2023). In addition to these structural differences between sectors, it is also essential to consider how internal organisational factors affect the experience of public employees (Madureira et al., 2021). Investing in competency development not only increases satisfaction levels, but also enhances the quality of public services (Marzec & Austen, 2021). Along these lines, Choiriyah and Ryanto (2021) argue that continuous training is essential for competency acquisition and for reinforcing employees' sense of value within the organisation, ultimately maximising job satisfaction.

In the public sector, job satisfaction is also closely related to how employees perceive the PA process and its impact on career progression (Memon et al., 2020). Due to the quota system embedded in the Integrated Performance Management and Appraisal System for Public Administration (SIADAP), many employees report demotivation, as salary progression and recognition are limited regardless of their efforts or performance (Madureira et al., 2021). This perception of injustice often results in reduced organisational commitment and lower individual performance. Therefore, implementing a more transparent appraisal system, grounded in real merit, could contribute to increased job satisfaction and, consequently, to improved public service efficiency.

Despite the relevance of this topic, there are still gaps in understanding how various factors interact to influence job satisfaction in public administration. This study addresses this

gap by proposing a sequential mediation model that investigates the role of competency acquisition, PA outcomes, and career progression opportunities in the relationship between training and job satisfaction.

The relevance of this study lies in the urgent need to enhance people management in the public sector by promoting strategies that foster employee motivation, engagement, and performance. Understanding the factors that influence job satisfaction is crucial for talent retention, improving the quality of public services, and strengthening institutional efficiency.

## **1. Literature review**

### **1.1. Public administration: structural challenges and contemporary transformations**

Portuguese public administration is characterised by a complex structure composed of agencies and entities operating under different levels of autonomy and subordination. This configuration, rooted in traditional bureaucratic logics, has undergone a series of reforms aimed at administrative modernisation and improved institutional performance (DGAEP, 2025).

Over the past decades, many of these reform efforts have been inspired by the principles of New Public Management (NPM), a paradigm that seeks to transfer private-sector practices into the public sector, emphasising efficiency, results orientation, and individual accountability (Kolk & Kaufmann, 2019; Madureira, 2020). The introduction of PA systems such as SIADAP, the promotion of merit-based career progression, and the focus on continuous training are concrete examples of this managerial orientation (Madureira et al., 2021).

However, the implementation of NPM in the Portuguese public sector has also faced criticism. Although it encourages a more results-driven management approach, it creates tensions with traditional public service principles such as employment stability and equal opportunities (Barbieri et al., 2023). The rigidity of progression systems, often based on quotas and formal criteria, does not always allow for the effective recognition of merit, which undermines perceptions of fairness and weakens intrinsic motivation (Rodrigues et al., 2023).

Training and professional development have therefore emerged as key pillars for strengthening public management (Kolk & Kaufmann, 2019). Law no. 66-B/2007, of 28 December, updated by Decree-Law no. 12/2024, of 10 January, defines as a primary objective the identification of training and development needs that contribute to the improvement of services, managers, and staff performance, while simultaneously fostering motivation, upskilling, and lifelong learning. Despite the progress made, public administration currently faces major challenges, notably an ageing workforce and the need to adapt to the digital

transformation process (Martins et al., 2024). The digitalisation of public services, the use of online platforms, and the reconfiguration of management models have proven to be essential for building a more modern, efficient, and citizen-centred administration (Secchi et al., 2024).

In this context, training and professional development play a strategic role. Beyond enhancing human capital, they may serve as compensatory mechanisms of recognition in a system where career progression is often constrained by structural limitations (Autoridade Nacional de Segurança Rodoviária [ANSR], 2024). However, for training to effectively contribute to motivation and organisational commitment, it must be accompanied by coherent and transparent systems of recognition, aligned with the principles of NPM but adapted to the specificities of the public sector.

### **1.2. Training and job satisfaction: Theoretical foundations and empirical evidence**

Job satisfaction is broadly defined as an affective-emotional response to one's professional activity or to specific aspects of the job itself (Cik et al., 2021). According to Spector (2022), it emerges from a cognitive process in which employees compare the actual conditions of their work with a subjective benchmark of expectations and values.

As a multifactorial construct, job satisfaction results from an individual's perception of the extent to which their expectations align with the objective characteristics of their work (Spector, 2022). Several theoretical models have sought to explain the underlying mechanisms of this perception. The Job Characteristics Theory (Hackman & Oldham, 1976) argues that elements such as task significance, autonomy, and performance feedback are critical determinants of motivation and job satisfaction. These dimensions are particularly relevant in contexts such as public administration, where bureaucratic structures and standardised procedures may constrain autonomy and recognition.

Complementarily, the Self-Determination Theory (Deci & Ryan, 1985) emphasises the importance of fulfilling three basic psychological needs – autonomy, competence, and relatedness – as core sources of satisfaction. Within this framework, continuous training may serve as a catalyst for motivation by enhancing perceived competence development, strengthening the sense of being valued, and fostering a deeper connection between employees and the organisation (Rezmer, 2023; Elsafty & Oraby, 2022).

In the public sector, these dynamics acquire specific contours. The literature on Public Service Motivation (PSM) (Perry & Wise, 1990; Wang et al., 2024) suggests that public administration employees are strongly driven by prosocial values, such as commitment to the

common good, social justice, and service to the community. In this context, job satisfaction depends not only on extrinsic rewards but, above all, on the perception that their work is meaningful, valued, and aligned with personal values (Kim et al., 2021).

In line with this view, Lekic et al. (2019) propose that continuous training is intrinsically related to job satisfaction, as it fosters skill development and promotes personal fulfilment. Supporting this perspective, Madureira et al. (2021) found that organisational factors are decisive in shaping employee satisfaction. These factors contribute to a work environment where employees feel valued, motivated, and committed to the organisation's mission (Raisal et al., 2021).

Among the elements that influence employees' psychological states and their responses to job characteristics, three key dimensions stand out: (i) the perceived meaningfulness of the work (Kim et al., 2021); (ii) the sense of responsibility in task execution (Moras & Kashyap, 2021); and (iii) the awareness of performance outcomes (Siruri & Cheche, 2021). For employees to experience high levels of job satisfaction, they must view their work as relevant and aligned with their personal values (Omar et al., 2022). Additionally, they must feel responsible for their results and recognise the existence of a transparent and merit-based reward system (Kiyak & Karkin, 2023). The implementation of effective incentive plans, combined with continuous training opportunities, can enhance performance and contribute to higher levels of job satisfaction (Riyanto et al., 2023).

In the context of public administration, Raisal et al. (2021) identified key motivational factors, including a positive work environment and fulfilment derived from task completion. Furthermore, the opportunity to participate in training programmes aimed at professional skill development is highlighted (Marzec & Austen, 2021). In this regard, Elsafty and Oraby (2022) argue that training programmes should be designed based on both individual employee needs and the organisation's strategic objectives. Learning should therefore be conceived as a shared responsibility, in which employees demonstrate willingness to acquire new knowledge while organisations commit to creating favourable conditions for professional development (Rezmer, 2023).

Based on these premises, the first research hypothesis was defined:

**Hypothesis 1:** *Training positively influences job satisfaction among public administration employees.*

### 1.3. Sequential mediation model

The relationship between training and job satisfaction has been widely examined in the literature, yet it is often treated as a direct and static link. However, there is growing evidence that this impact unfolds through intermediate organisational processes that shape employees' perceptions of recognition and translate training investments into tangible outcomes (Muzakky & Wulansari, 2024).

According to Human Capital Theory (Becker, 1964; Wuttaphan, 2017), training promotes the acquisition of knowledge and skills that enhance an individual's value to the organisation. In the context of public administration, such development may improve job performance, equip employees for new roles, and increase their adaptability to complex and evolving environments (Atobishi et al., 2024).

Competency acquisition thus represents the first link in the chain connecting training to job satisfaction, by creating the conditions for more effective performance aligned with organisational goals (Kumi et al., 2024). Integrating competency-based training models helps align organisational needs with individual expectations, contributing to more coherent and motivating career paths (Mampuru et al., 2024).

Building on this reasoning, Muzakky and Wulansari (2024) suggest that training and competency acquisition have a positive influence on job satisfaction, and that this relationship is mediated by career progression. Mampuru et al. (2024) further emphasise that training focused on competency development is essential for career advancement and for reinforcing a sense of professional recognition. In this sense, training and skills development not only improve employee performance and adaptability within the public sector, but also serve as key drivers of professional growth (Keltu, 2024). Career progression, in turn, operates as a mediating factor, consolidating the impact of training on job satisfaction.

Based on this conceptual framework, the second research hypothesis was defined:

**Hypothesis 2:** *Competency acquisition and career progression function as sequential mediators in the relationship between training and job satisfaction.*

### 1.4. The role of performance appraisal in the sequential mediation model

PA emerges as a key element in the proposed model, playing a crucial role in how employees perceive organisational recognition. According to Equity Theory (Adams, 1965), employees compare their efforts and outcomes with those of others. When they perceive that their performance is fairly and transparently recognised through PA, they tend to feel motivated

and satisfied. Conversely, the absence of adequate recognition may generate feelings of frustration, devaluation, and demotivation (Madureira et al., 2021).

Several studies (e.g., Keeping & Levy, 2000; Madureira et al., 2021; Shelden & Sowa, 2011) have highlighted the importance of continuous training and skill development for job satisfaction. However, these factors are most effective when combined with a PA system that is perceived as fair and with real opportunities for career advancement (Marzec & Austen, 2021). The alignment of training investment, performance recognition, and career progression is therefore considered essential to promoting job satisfaction within organisational contexts (Kiyak & Karkin, 2023). For the PA process to be effective, all stakeholders must understand its goals, methodologies, and consequences, and recognise its legitimacy and instrumental value (Rodrigues et al., 2023).

Madureira et al. (2021) observed that most public administration employees acknowledge the importance of PA. However, the current model in place – SIADAP – is often perceived as inadequate, particularly due to its lack of objectivity and transparency. In response, public sector organisations must invest in structured training pathways, implement fair and reliable PA systems, and offer clear and accessible career trajectories (Marzec & Austen, 2021). These practices not only enhance job satisfaction, but also contribute to improved organisational performance and overall employee well-being (Steil et al., 2022). Together, these factors help foster a more equitable, motivating, and productive organisational environment, reinforcing the notion that employee satisfaction is fundamental to the effectiveness and quality of public service delivery (Barbieri et al., 2023).

It is important to emphasise that the recognition of competencies – reflected in positive PA outcomes and in tangible career progression opportunities – acts as a powerful driver of intrinsic motivation (Atobishi et al., 2024). When employees perceive that their training efforts are valued and rewarded, they tend to show higher levels of organisational commitment and a more proactive attitude toward their responsibilities (Mampuru et al., 2024). This perception of fairness and merit contributes to the development of a growth-oriented organisational culture, where job satisfaction emerges as a natural outcome of a virtuous cycle of investment, recognition, and ongoing development (Muzakky & Wulansari, 2024).

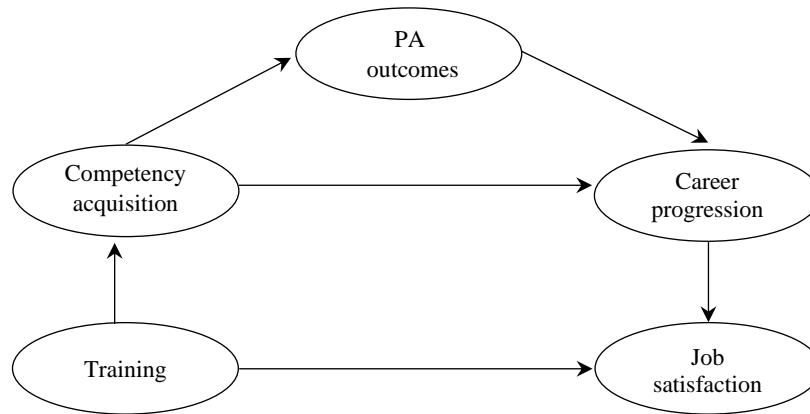
Based on the literature reviewed, the third research hypothesis was formulated:

**Hypothesis 3:** Competency acquisition, PA outcomes, and career progression sequentially mediate the relationship between training and job satisfaction.

Figure 1 illustrates the relationships among the variables discussed throughout the literature review.

**Figure 1**

*Sequential mediation model*



Source: Authors' own work

The model examines the direct effect of training on job satisfaction (H1), as well as indirect effects through organisational mediators. It specifically reflects the mediation pathway involving competency acquisition and career progression (H2), and the more comprehensive sequential mediation pathway that includes competency acquisition, PA outcomes, and career progression (H3).

## 2. Method

The choice of a sequential mediation model aims to understand the pathways through which investment in training translates – or fails to translate – into job satisfaction, via competency acquisition, PA, and career progression.

### 2.1. Study design

This cross-sectional study adopted a quantitative approach with the aim of analysing the relationships among variables and testing the proposed hypotheses. Data collection was carried out through a structured questionnaire administered to a convenience sample. The selected methodological approach enabled access to a broad set of experiences and perceptions relevant to the analysis of professional development trajectories in the public sector. This research design is considered appropriate when theoretical or empirical evidence suggests that

mediation effects occur either immediately or within a short time frame (Wang & Cheng, 2020).

## 2.2. Sample

A total of 340 public administration employees participated in the study, of whom 58.2% were female (see Table 1). Participants' ages ranged from 21 to 65 years ( $M = 49.43$ ;  $SD = 8.91$ ). The sample included professionals from various hierarchical levels and with different lengths of service. This diversity made it possible to analyse the impact of training, competency acquisition, PA outcomes, and career progression on job satisfaction. The sociodemographic characteristics of the respondents are detailed in Table 1.

**Table 1**

*Sociodemographic profile of respondents*

<b>Variables</b>	<b>N = 340</b>
<b>Gender (as indicated on ID)</b>	
Male	142 (41.8%)
Female	198 (58.2%)
<b>Age group</b> ( $M = 49.43$ ; $SD = 8.91$ )	
≤ 44 years	94 (27.6%)
45–54 years	134 (39.4%)
≥ 55 years	112 (32.9%)
<b>Educational level</b>	
Below undergraduate degree	52 (15.3%)
Undergraduate degree	183 (53.8%)
Postgraduate degree	105 (30.9%)
<b>PA system</b>	
SIADAP 2	139 (40.9%)
SIADAP 3	143 (42.1%)
Other system	58 (17.1%)
<b>Length of service</b> ( $M = 21.67$ ; $SD = 9.24$ )	
≤ 15 years	80 (23.5%)
16–25 years	133 (39.1%)
≥ 26 years	127 (37.4%)

**Note:** M = Mean; SD = Standard-deviation

**Source:** Authors' own work

## 2.3. Measures

*Employee Training Questionnaire.* To assess employees' perceptions of the training activities they had attended, five items developed by Hanaysha and Tahir (2016) were used,

based on the work of Schmidt (2004) (e.g., *Overall, the training I receive on the job meets my needs*). The scale demonstrated satisfactory internal consistency, both in the present study and in the aforementioned research, with Cronbach's alpha coefficients of 0.86.

*Competency acquisition.* The competencies assessed were derived from the training plan of the Portuguese National Road Safety Authority (ANSR, 2024) and were defined in alignment with the PA objectives set out by SIADAP (Portugal, Assembleia da República, 2007). For example, one of the items evaluated was: "The most recent training activity I attended helped me improve my public service orientation skills." The questionnaire, which included the 18 competencies outlined in the training plan, demonstrated high internal consistency ( $\alpha = 0.95$ ).

*Performance appraisal.* This variable was assessed using a single-item scale. For this purpose, the terminology used in the Portuguese public administration was adopted, ranging from Inadequate Performance to Excellent Performance (Portugal, Presidência do Conselho de Ministros, 2024; Madureira et al., 2021). According to Alexandrov (2010) and Rodrigues et al. (2023), this format is considered the most suitable when the goal is to obtain a quick and easily interpretable response, as is often required in workplace contexts. Although this type of scale is frequently criticised for its inability to generate psychometric indicators, Fuchs and Diamantopoulos (2009) argue that it presents advantages over multi-item scales, as it can produce more efficient results.

*Career Growth Scale.* This variable was assessed using four items developed by Weng and Hu (2009) (e.g., "The probability of being promoted in my present organization is high"). Both in the original validation studies and in the present research, Cronbach's alpha coefficients indicated satisfactory internal consistency, with values ranging between 0.83 and 0.86.

*Job Satisfaction Questionnaire.* This variable was measured using four items developed by Sabri et al. (2011) (e.g., "Overall, I am satisfied with my current job"). The final score was calculated by averaging the sum of all item responses, with higher values indicating greater levels of job satisfaction. As in the original validation study, Cronbach's alpha coefficients demonstrated high internal consistency, ranging from 0.80 to 0.84.

With the exception of the PA outcome, all other variables were assessed using a five-point Likert scale, ranging from 1 (Strongly disagree) to 5 (Strongly agree), depending on the degree of agreement with each statement.

*Control variables.* To reduce potential bias in the results, age and organisational tenure were included as control variables. Several studies (e.g., Dobrinić & Fabac, 2021; Rice et al., 2022; Wisse et al., 2018) have identified these two factors as strong predictors of job satisfaction in workplace contexts. According to Stazyk et al. (2021), older employees tend to report higher levels of job satisfaction compared to younger colleagues, often due to better working conditions and higher salaries. Similarly, Steil et al. (2002) argue that longer tenure is generally associated with greater financial stability and access to benefits, which positively contribute to satisfaction levels.

#### **2.4. Procedures**

Data were collected internally across several public administration services, using an online questionnaire. The corresponding link was distributed by email to employees who agreed to participate in the study. The questionnaire header included a brief overview of the study's objectives, along with information regarding informed consent, ensuring the confidentiality and anonymity of all responses. Data analysis was conducted using SPSS and AMOS software.

#### **2.5. Statistical analysis**

To assess multivariate normality, Mardia's coefficient was applied (Mardia, 1980). This method made it possible to calculate skewness, kurtosis, and statistical significance (p-value). The results indicated that the data met the assumptions of multivariate normality (Mardia\_skewness = 2.90,  $p = 0.79$ ; Mardia\_kurtosis = 8.07,  $p = 0.38$ ), since Mardia's standardised coefficient exceeded the 5% threshold ( $p > 0.05$ ; Hossain et al., 2022; Mardia et al., 2024).

Additionally, skewness and kurtosis values for the variables analysed were within the range of  $[-1.5; 1.5]$ , as recommended by Ventura-León et al. (2023). To control for common method bias, Harman's single-factor test was performed. The unrotated solution explained 47.3% of the total variance – below the 50.0% threshold proposed by Kock et al. (2021) – suggesting that common method bias did not significantly affect the results.

Convergent validity was confirmed, as the average variance extracted (AVE) exceeded 0.50 and the composite reliability (CR) was greater than 0.70, in accordance with the criteria established by Cheung et al. (2024). Furthermore, the maximum shared variance (MSV) was

lower than the AVE for all variables, confirming the discriminant validity of the measurement model (Acar et al., 2023).

Finally, statistically significant correlations were observed among all main variables (see Table 2), with the exception of age and organisational tenure, which showed no significant relationships with the core constructs. These results indicate that sociodemographic characteristics did not influence the patterns identified in the analysis.

**Table 2**

*Descriptive statistics*

Variable	<i>M</i>	<i>SD</i>	CR	AVE	MSV	1	2	3	4
1. JS	3.23 <sup>1</sup>	0.90	0.86	0.77	0.32	(0.80)			
2. Training	3.29 <sup>1</sup>	0.88	0.91	0.81	0.40	0.446**	(0.86)		
3. CA	3.15 <sup>1</sup>	0.94	0.98	0.83	0.40	0.392**	0.630**	(0.95)	
4. CP	1.96 <sup>1</sup>	0.81	0.89	0.82	0.32	0.555**	0.324**	0.393**	(0.83)
5. PAO <sup>2</sup>	-	-	-	-	-	0.187**	0.059	0.108*	0.201**
Age	49.43	8.91	-	-	-	0.110	-0.089	0.036	0.093
LoS	21.67	9.24	-	-	-	0.105	-0.087	0.037	0.096

**Note:** N = 401; JS = Job satisfaction; CA = Competency acquisition; CP = Career progression; PAO = Performance appraisal outcomes; LoS = Length of service; \*\* $p < 0.001$ ; M = Mean; SD = Standard-deviation; CR = Composite Reliability; AVE = Average Variance Extracted

<sup>1</sup>Scale ranging from 1 to 5; Cronbach's Alpha are in brackets

<sup>2</sup>Single-item assessment

**Source:** Author's own work

Confirmatory Factor Analysis (CFA) was subsequently conducted to assess whether the observed variables adequately reflected the latent constructs (Widaman & Helm, 2023). The estimated coefficients indicated a good model fit to the sample data [ $\chi^2(385) = 2.82$ ,  $p < 0.001$ , GFI = 0.88, CFI = 0.92, TLI = 0.91, RMSEA = 0.07, LO90 = 0.06, HI90 = 0.07], although the CFI value was slightly below the threshold recommended by Hu and Bentler (1999) and Van Laar & Braeken (2021).

### 3. Results

To test the hypotheses formulated in this study, multiple linear regression analyses were conducted, along with the estimation of a serial mediation model. Initially, the direct effect of training on job satisfaction was tested and found to be statistically significant and positive ( $\beta = 0.446$ ,  $t = 9.169$ ,  $p < 0.001$ ; Hypothesis 1). Additionally, the training variable explained only

19.7% of the variance in job satisfaction ( $R^2 = 0.197$ ), indicating that although training plays a relevant role, other workplace factors also influence satisfaction levels.

To analyse the indirect effects of training on job satisfaction through competency acquisition, PA, and career progression, Model 6 of the PROCESS macro for SPSS was applied (Hayes, 2018). The results showed that, when considered in isolation, only career progression ( $B = 0.066$ ,  $SE = 0.033$ , 95% CI [0.001, 0.128]) mediated the relationship between training and job satisfaction. However, when examined jointly, competency acquisition and career progression demonstrated a significant sequential mediation effect. That is, training positively influenced job satisfaction, first through competency acquisition and then through career progression ( $B = 0.093$ ,  $SE = 0.023$ , 95% CI [0.050, 0.141],  $p < 0.001$ ; Hypothesis 2).

Finally, the analysis tested whether the inclusion of PA results maintained the sequential mediation effect. The findings confirmed the significance of the mediation ( $B = 0.005$ ,  $SE = 0.004$ , 95% CI [0.001, 0.013],  $p < 0.001$ ; Hypothesis 3), indicating that competency acquisition resulting from training positively affects PA, which in turn facilitates career progression. This process ultimately enhances job satisfaction.

Subsequently, comparisons were made between the significant indirect effects to examine whether they differed in strength in mediating the relationship between training and job satisfaction (see Table 3). The results showed that the indirect effect of training via career progression alone ( $B = 0.066$ ) was smaller than the effect when career progression was combined with competency acquisition ( $B = 0.093$ ), which in turn was greater than the full sequential mediation path ( $B = 0.055$ ).

**Table 3***Comparison of mediation paths linking training to job satisfaction*

Effects	Bootstrapping CI			
	B	SE	Lower	Upper
<i>Total indirect Effect</i>				
Model 1: Training → Competency acquisition → Job satisfaction	0.000	0.043	-0.082	0.089
Model 2: Training → PA outcomes → Job satisfaction	0.004	0.008	-0.010	0.023
Model 3: Training → Career progression → Job satisfaction	<b>0.066</b>	<b>0.033</b>	<b>0.001</b>	<b>0.128</b>
Model 4: Training → Competency acquisition → PA outcomes → Job satisfaction	0.008	0.006	-0.001	0.024
Model 5: Training → Competency acquisition → Career progression → Job satisfaction	<b>0.093</b>	<b>0.023</b>	<b>0.050</b>	<b>0.141</b>
Model 6: Training → PA outcomes → Career progression → Job satisfaction	0.002	0.005	-0.005	0.013
Model 7: Training → Competency acquisition → PA outcomes → Career progression → Job satisfaction	<b>0.005</b>	<b>0.004</b>	<b>0.001</b>	<b>0.013</b>

*Note.* B = Unstandardized beta; SE = Standard error; CI = Confidence intervals

*Source.* Author's own work

The mediation analysis showed that training influences job satisfaction indirectly by promoting competency development, which improves PA outcomes and, in turn, facilitates career progression. The comparison of indirect effects highlights the importance of a structured professional development pathway in which training leads to competency acquisition, which is reflected in PA, drives career progression, and ultimately enhances job satisfaction. These findings emphasise the need to implement organisational strategies that promote training opportunities aligned with career development plans and PA systems, in order to ensure more effective use of employee qualifications in the workplace.

#### 4. Discussion

This study aimed to deepen the understanding of how training impacts job satisfaction among public administration employees, highlighting its relevance in the work context. The results demonstrated that training has a positive effect on job satisfaction, thereby confirming Hypothesis 1. Similar findings were reported by Lekic et al. (2019), who emphasised the link between continuous training, competency development, and increased satisfaction. Likewise, Marzec and Austen (2021) noted that training not only facilitates the acquisition of new knowledge and skills but also strengthens perceptions of professional recognition and career progression.

However, the effect of training on job satisfaction was found to be relatively moderate, suggesting that while important, training alone is not a sufficient predictor of job satisfaction. These findings align with studies by Kim et al. (2021), Moras and Kashyap (2021), and Siruri and Cheche (2021), which highlight that satisfaction results from the interaction of multiple elements, such as perceived task significance, role responsibility, and outcome recognition. Kiyak and Karkin (2023) add that a positive work environment and transparent reward systems are also essential in fostering satisfaction. Although training plays a meaningful role, these results underscore the need for an integrated human resource management (HRM) approach that includes complementary strategies to enhance employee motivation and satisfaction (Spector, 2022).

The positive effect of training reinforces the importance of developing training programmes that are aligned with employee needs and organisational strategic goals (Elsafty & Oraby, 2022). Building on this premise, Rezmer (2023) argues that it is essential to create conditions that foster continuous professional development, ensuring tangible benefits for both employees and the organisation.

Hypothesis 2, which proposed that competency acquisition and career progression function as sequential mediators between training and job satisfaction, was partially supported. The analysis showed that only career progression, when considered in isolation, had a significant mediating effect. However, when both variables were examined jointly, a sequential mediation effect was observed: training positively influenced job satisfaction first through competency acquisition and then through career progression.

These findings are consistent with those of Kumi et al. (2024), who suggested that employee recognition in public administration increasingly depends on the ability to acquire and apply practical, transversal, and digital skills. Acquiring such competencies improves job fit and increases career advancement opportunities, which in turn boost motivation and satisfaction (Atobishi et al., 2024). The empirical evidence of sequential mediation supports the theoretical assumptions of Muzakky and Wulansari (2024), who argue that training directed at relevant skill development has a direct impact on career progression, which is in turn a key factor in job satisfaction.

This sequential relationship demonstrates that training investments only generate meaningful improvements in employee well-being when they are linked to well-defined career development plans and organisational environments that reward merit and support professional growth (Keltu, 2024). These results strengthen the case for policies that promote competency-

based training and foster clear and motivating professional trajectories (Mampuru et al., 2024). Promoting individual and collective performance contributes to building more effective, resilient, and citizen-oriented public sector organisations (Rice et al., 2025).

Hypothesis 3 was also supported. The findings confirmed the existence of a sequential mediation effect between training and job satisfaction via competency acquisition, PA outcomes, and career progression. These results are in line with those reported by Muzakky and Wulansari (2024), who stress that the impact of training on satisfaction is neither direct nor immediate but occurs through a coordinated process of professional recognition and validation. Mampuru et al. (2024) add that training promotes the development of relevant skills, which are reflected in more favourable PA outcomes and, consequently, increased career progression.

This process significantly contributes to enhancing job satisfaction among public sector employees. According to Madureira et al. (2021), perceived fairness and transparency in PA processes are critical for sustaining motivation and organisational commitment. The present study's data also showed that when employees believe their skill acquisition is valued and that PA accurately reflects their performance, they feel more motivated and engaged. As argued by Atobishi et al. (2024), institutional recognition of acquired competencies acts as a stimulus for intrinsic motivation. Career progression, in turn, serves as both an instrumental and symbolic reinforcement of that recognition, contributing to an organisational culture grounded in fairness, merit, and employee well-being (Muzakky & Wulansari, 2024).

#### **4.1. Theoretical and practical contributions**

This study offers a relevant contribution to advancing knowledge in the field of human resource management (HRM) in the public sector by proposing and empirically testing a sequential mediation model that integrates training, competency acquisition, PA outcomes, career progression, and job satisfaction. Unlike fragmented approaches that examine these constructs in isolation, the present research provides a systemic understanding of how their effects unfold, offering a more comprehensive perspective on motivational dynamics in public administration.

The main theoretical contribution lies in demonstrating that training only has a significant impact on job satisfaction when it is integrated with organisational recognition mechanisms—namely, the valuing of acquired competencies, fair PA, and the existence of real opportunities for career progression. This integrative perspective enhances the understanding of the psychological and organisational mechanisms that support motivation at work, reinforcing the

relevance of human capital theory and recognition-based approaches grounded in symbolic and non-material rewards in the public sector. By proposing a model tailored to the specificities of public administration – particularly its bureaucratic structure, rigid progression systems, and the importance of intrinsic motivational factors – this study helps bridge the theoretical gap regarding job satisfaction in public sector contexts.

From a practical standpoint, this research provides empirical evidence that underscores the need to define more effective HRM policies in public administration. The findings suggest that without recognition and career advancement prospects, investment in training has limited impact on employee satisfaction. It is therefore recommended that public institutions align training programmes with performance evaluation systems based on transparent and merit-based criteria, ensuring that training efforts are reflected in career development.

The proposed model can serve as a foundation for redesigning more integrated HRM practices focused on recognising performance and developing human potential. Implementing clear career plans that are connected to training paths and continuous competency improvement may serve as effective tools for talent retention, especially among younger and more qualified staff. This approach is particularly relevant in the face of an ageing workforce and increasing difficulties in attracting skilled professionals to the public sector.

Moreover, this research contributes to consolidating the principles of NPM by demonstrating that the efficiency and quality of public services are inherently linked to employee well-being and recognition. By promoting job satisfaction through fair, coherent, and strategically aligned HRM practices, public administration can become more attractive, modern, and effective in fulfilling its mission.

#### **4.2. Limitations and suggestions for future studies**

Despite the methodological rigour and the relevance of the findings, this study presents some limitations that should be considered when interpreting the results. First, the use of a convenience sample may compromise the representativeness of the data and, consequently, limit the generalisability of the findings to the broader population of public administration employees. The relatively small sample size also constitutes a methodological limitation, as it may affect the statistical robustness of the tested models. Moreover, given the complexity of the proposed sequential mediation model, the relatively small sample size may have limited the statistical power to detect subtle indirect effects, particularly in the longer mediation pathways (e.g., Hypothesis 3).

In addition, the cross-sectional nature of the study – based on data collected at a single point in time – prevents the identification of causal relationships and the observation of potential changes in employees' perceptions over time. While the sequential mediation model helps to uncover the mechanisms underlying the relationships between variables, its complexity requires a high degree of analytical rigour and does not allow for strong causal inference in non-experimental settings.

Another limitation concerns the exclusive use of a quantitative approach, which, although useful for identifying patterns and testing hypotheses, does not allow for an in-depth exploration of employees' subjective experiences. The absence of qualitative data may restrict the interpretation of certain relationships, particularly those involving individual perceptions of PA, career progression, and the recognition of acquired competencies.

To deepen the understanding of this topic, future research should consider adopting longitudinal designs that enable the analysis of variable evolution over time and provide stronger support for causal interpretations. The use of probabilistic and representative samples from the public sector population would also enhance the external validity of the results. Additionally, combining quantitative and qualitative methods – such as semi-structured interviews or focus groups – may provide richer insights into the subjective and contextual dynamics associated with job satisfaction.

Finally, future studies are encouraged to explore the role of leadership in the public sector, particularly how the actions of department heads and senior managers affect employee motivation and satisfaction. It would be especially relevant to examine leadership as a potential mediating or moderating variable in the relationship between training, competency acquisition, PA outcomes, career progression, and job satisfaction. This line of research could offer valuable contributions for developing more effective leadership policies and for implementing HRM practices that are well adapted to the specific characteristics of public administration.

## **Conclusion**

The main objective of this study was to analyse the factors that contribute to job satisfaction among public administration employees. By applying a sequential mediation model, the study sought to understand how training influences job satisfaction, considering competency acquisition, PA outcomes, and career progression as mediating variables.

The results showed that training has a positive impact on job satisfaction, and that this effect is enhanced when the acquired competencies are duly recognised. A sequential mediation

effect was confirmed, in which training promotes the development of competencies, which in turn positively influence PA outcomes and subsequently facilitate career progression. This process ultimately leads to higher levels of job satisfaction. These findings are consistent with the existing literature (e.g., Atobishi et al., 2024; Madureira et al., 2021; Mampuru et al., 2024; Muzakky & Wulansari, 2024) and highlight that the valorisation of human capital – when supported by fair and effective systems of professional development and recognition – contributes significantly to employee well-being and organisational efficiency.

However, the results also revealed that PA, when considered as an isolated mediating variable, exerts a weaker effect compared to other indirect pathways. This finding suggests that the performance evaluation system currently implemented in public administration – namely, SIADAP – is not fully fulfilling its role in recognising and rewarding individual merit, which may limit the positive effects of training and competency development on employees' professional trajectories. The perception of injustice and inefficiency in the appraisal system undermines motivation and organisational engagement, thereby threatening the sustainability of a development-oriented culture.

In this context, it becomes essential for public institutions to adopt a strategic and integrated approach to people management, in which training investments are aligned with fair appraisal mechanisms and transparent, actionable career plans. The implementation of policies that recognise merit, encourage lifelong learning, and ensure progression opportunities may serve as a key driver of job satisfaction. This satisfaction, in turn, is not an end in itself, but a means to ensure the delivery of more effective, humane, and socially responsive public services.

By integrating training, competency acquisition, PA outcomes, and career progression in a sequential structure, the proposed model moves beyond fragmented or simplistic approaches that examine these variables in isolation. Its originality lies in the dynamic articulation between individual development factors and organisational recognition mechanisms, offering a more comprehensive understanding of professional advancement in public administration. In addition to enriching academic debate on strategic people management in bureaucratic settings, the model provides a valuable tool to support the design of more coherent, effective, and merit-oriented public policies.

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## Appendix 1 - Statement from the Ethics Committee of ISG/CIGEST



Ethic Commission ISG / CIGEST

Reference: CIG\_0010.11/2025

Date: April 29, 2025

Requested by: Professor Rosa Rodrigues

Title: "Training and job satisfaction in the public sector: A sequential mediation model on competencies, performance appraisal and career progression"

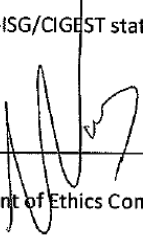
Authors: Rosa Isabel Rodrigues and Maria Manuela Aveiro Silva

The Ethics Committee of Instituto Superior de Gestão / CIGEST reviewed your application to obtain ethical assessment for your manuscript. Documents were analysed by professor Miguel Varela, Professor Ricardo Ferro and Professor Mariana Marques.

The commission has reviewed the manuscript and the applied questionnaire, validating that anonymity and confidentiality have been assured. Also, the commission notices that an informed consent was presented to the participants.

None of the researchers participating in this study took part in the decision making and voting procedure for this assessment.

Based on the documents review, the EC-ISG/CIGEST states a favorable ethical opinion about the request.



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The President of Ethics Commission ISG / CIGEST

Ethics Commission ISG / CIGEST, Rua Professor Reinaldo dos Santos, nº 46 A, 1500-552 Lisboa (Benfica)