

REWARDS AS A FACTOR OF MOTIVATION IN THE CONTEXT OF AIR FORCE CIVILIAN EMPLOYEES

RECOMPENSAS COMO FATOR DE MOTIVAÇÃO NO CONTEXTO DOS TRABALHADORES CIVIS DA FORÇA AÉREA

Mónica Solange de Jesus Pereira Martins¹

Captain

Integrated Researcher at CIDIUM

Lisbon, Portugal

msmartins@emfa.pt

Abstract

Previous studies have found that Non-Financial Rewards (NFR) influence motivation, and are reflected in individual and organizational performance. This study has analysed the influence of intrinsic and extrinsic NFR in the intrinsic and extrinsic motivation of Air Force civilian employees integrated in a general career, as well as identifying which NFR have an impact on motivation.

For this purpose, we have distributed an individual questionnaire to 767 civilian employees, 412 (53,7%) of whom submitted valid questionnaires.

The statistical results showed that the NFR and motivation concepts are one dimensional, and suggested that NFR, as a human resource management practice, positively influence the motivation of Air Force civilian employees, accounting for 67,6% of the variance in motivation. Of the NFR which have impact on motivation, we have found that 'job satisfaction' is the most expressive, followed by 'possibility of work-life balance', 'possibility to use skills', 'challenging work', 'team spirit' and 'the existence of a staff training and development programme'.

We have further verified that the demographic variables (gender, age, seniority and career) do not moderate the relationship between NFR and motivation.

¹ Paper prepared in collaboration with Major Paulo Picado, Air Force Supply Technician, and José Luís Nascimento, Visiting Assistant Professor at Instituto Superior de Ciências Sociais e Políticas of Universidade de Lisboa.

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Resumo

Estudos anteriores concluíram que as Recompensas Não Financeiras (RNF) têm impacto na motivação, bem como no desempenho individual e organizacional. Este estudo procurou analisar a influência das RNF intrínsecas e extrínsecas na motivação intrínseca e extrínseca, no contexto dos trabalhadores civis das Força Aérea, integrados nas carreiras gerais, bem como a identificação das RNF com impacto na motivação.

Para o efeito, foi distribuído um questionário individual a 767 trabalhadores civis, tendo sido recebidos 412 (53,7%) questionários válidos.

Os resultados estatísticos demonstraram a existência de unidimensionalidade dos conceitos RNF e da motivação e sugeriram que as RNF, como prática de gestão de recursos humanos, têm influência positiva e significativa na motivação dos trabalhadores civis da Força Aérea, explicando 67,6% da variância da motivação. Das RNF com impacto na motivação, verificou-se que é a “satisfação no trabalho” a que mais se destaca, seguida da “possibilidade de equilíbrio entre vida pessoal e trabalho”, “possibilidade de exercer as suas competências”, “trabalho desafiador”, “bom espírito de equipa” e “existência de um plano de formação e desenvolvimento profissional”.

Verificou-se ainda que as variáveis demográficas (género, idade, antiguidade e carreira) não moderam a relação entre as RNF e a motivação.

Palavras-chave: *Motivação, Motivação Extrínseca, Motivação Intrínseca, Recompensas, Recompensas Não Financeiras Extrínsecas, Recompensas Não Financeiras Intrínsecas*

Introduction

In light of the current economic situation, and since the State Budget Law (LOE) for 2011 was passed, there have been successive reductions in the remuneration of civil servants, and financial incentives related to the assessment of individual performances, such as salary changes (career development), have been frozen and the attribution of performance bonuses has been restricted. Furthermore, the Resolution of the Council of Ministers n. 26/2013 of 11 April introduced measures to rationalise military spending, namely by reducing the number of civilian employees to 70% of the total at that time.

Given these circumstances, organizations, and specifically the Air Force, are facing the challenge of creating human resource management practices to motivate their employees even at this juncture.

Thus, the problem under study is how to leverage the motivation of civilian employees to boost their performance, which in turn will contribute to accomplish the Air Force mission.

Reward systems are composed of financial and non-financial rewards (Chiang and Birtch, 2006). Financial rewards in Public Administration, and more specifically in the Air Force are limited to the base salary and individual performance incentives set out in Law n. 66-B/2007 of 28 December, which regulates the Sistema Integrado de Gestão e Avaliação do Desempenho na Administração Pública (SIADAP) [Integrated System for Management and Performance Evaluation of the Public Administration].

For this reason, this study will be limited to the analysis of Extrinsic and Intrinsic non-financial rewards (hereinafter referred to as NFR) with special impact on the work motivation of Air Force civilian employees.

Thus, and considering that one of the Air Force's strategic objectives outlined in Order n. 87/2012 of 28 December by the Chief of General Staff of the Air Force is to promote the continued improvement of Air Force performance through the efficient management of human resources, we believe that the results of this research can contribute to achieving this goal.

In light of the above, the objective of this research is to analyse the impact of NFR on the motivation of the Air Force civilian employees to evaluate the relevance of implementing NFR policies that boost functional performance, thereby enhancing organisational performance.

In order to operationalize the general objective, this research aims to achieve the following specific objectives:

SO1: Analysing the relationship between intrinsic and extrinsic NFR, as well as the relationship between the intrinsic and extrinsic motivation of Air Force civilian employees;

SO2: Analysing which of the NFR variables better predict the motivation of the Air Force civilian employees.

The above led us to formulate the research question that will guide this research:

RQ: To what extent do NFR, as a human resource management practice, influence the motivation of Air Force civilian employees?

This led to the formulation of the following subsidiary questions and their respective hypotheses:

SQ1: Is there a relation between the intrinsic and extrinsic dimensions of both NFR and motivation?

H1: Intrinsic NFR are not related to extrinsic NFR.

H2: Intrinsic motivation is not related to extrinsic motivation.

SQ2: What is the relationship between NFR and motivation?

H3: Intrinsic NFR positively relate to intrinsic motivation.

H4: Intrinsic NFR positively relate to extrinsic motivation.

H5: Extrinsic NFR positively relate to intrinsic motivation.

H6: Extrinsic NFR positively relate to extrinsic motivation.

We have decided to use a quantitative research strategy, as this research will adopt a hypothetical-deductive approach. During the exploratory phase, we found it important to conduct exploratory interviews concurrently with several preliminary readings, so that this research can add value to human resource management in the Air Force.

As for the analytical phase, the research population selected consisted of Air Force civilian employees integrated in a general career and bound by an employment contract in public functions for an indefinite period, under the General Labour Law on the Civil Service approved by Law n. 35/2014 of 20 June (hereinafter referred to as LTFP), and the convenience sample was composed of the employees who responded to the questionnaire voluntarily. A questionnaire survey was used to collect data. The data was initially analysed by using the exploratory factor method with maximum likelihood extraction in SPSS - Statistical Package for the Social Sciences (version 22), followed by a confirmatory method with structural equation modelling in LISREL - Linear Structural Relations (version 9.2).

As for the final phase, after being analysed, the data were interpreted, evaluated and discussed bearing in mind the organizational context where the study was conducted.

With regard to structure, the paper begins by introducing the issue to be presented in the subsequent four chapters and conclusion. The first chapter presents a review of the literature on the concepts analysed (NFR and motivation) and on the relation between them; the second chapter explores the methodology used in the present research; the third presents the results obtained and their analysis; and, finally, the fourth consists in the discussion of the outcomes. Finally, we will present our findings and a summary of the work conducted.

1. Literature Review

This chapter presents the concepts that will be subjected to analysis throughout this research, namely NFR and motivation, as well as the relation between both, according to the existing literature and empirical research.

a. NFR and Motivation

Some of the human resource management practices listed in the literature are rewards systems that, as reported by several authors (Sousa, et al., 2006), influence employee motivation and, consequently, employee productivity. These rewards systems comprise financial and non-financial rewards (Chiang and Birtch, 2006).

Financial rewards in Public Administration, and more specifically in the Air Force, are limited to base salary and to the individual performance incentives provided for in SIADAP.

For this reason, this study will focus on the analysis of extrinsic and intrinsic NFR, with special focus on the work motivation of Air Force civilian employees integrated into a general career and bound by an employment contract in public functions for an indefinite period under the LTFP.

The main concepts used in this research will be NFR and motivation.

Regarding the concept of NFR, Chiang and Birtch (2006) distinguish financial rewards from NFR and further subdivide the latter according to their extrinsic or intrinsic nature. According to the authors, extrinsic NFR are tangible and task-related, and are controlled and provided by the organisation (job security, possibility of promotion, relationship with colleagues, and work environment). On the other hand, intrinsic NFR stem from the task itself and are internalised by an individual (for example, challenging work, increased autonomy and responsibility). This research will avail itself of the typology outlined by Chiang and Birtch (2006) in light of the level of detail of their analysis, and will focus on the Extrinsic and Intrinsic NFR listed in Tables 1 and 2, respectively.

Table 1 – Extrinsic NFR

| Types of Extrinsic NFR |
|--|
| Good relationship with co-workers |
| Good relationship with immediate supervisor |
| Job security and stability |
| Possibility of promotion (career development) |
| Team spirit |
| Existence of a staff training and development programme |
| Possibility of work-life balance |
| Availability of sufficient resources to carry out the work |
| Work recognition/feedback (public praise, commendations, awards) |
| Workload compatible with the time assigned for completion |
| Favourable work environment |

Source: (Adapted from Chiang and Birtch, 2006).

Table 2 – Intrinsic NFR

| Types of Extrinsic NFR |
|---------------------------------------|
| Challenging work |
| Possibility of using skills |
| Task variety |
| Increased autonomy and responsibility |
| Fulfilment |
| Job satisfaction |

Source: (Adapted from Chiang and Birtch, 2006).

As for the concept of motivation, Ryan and Deci (2000) divide it into intrinsic and extrinsic motivation. Intrinsic motivation is related to an employee's personal investment in the task at hand. On the other hand, extrinsic motivation drives employees to strive for a goal that is not intrinsic to that task. The authors distinguish extrinsic motivation according to orientation, as outlined in the table below: external (when an employee's behaviour is affected by specific external contingencies), introjected (when employees do their best in order to gain approval from others), identified (employees are aware of the value assigned to a behaviour), and integrated (employees relate the value associated with a behaviour with the value they assign it internally).

b. NFR as a factor of Motivation

Camara (2011) states that rewards that are important and valued by individuals have an impact on their motivation. The use of financial rewards is a common management practice, but is the financial aspect of rewards that which motivates employees?

Frederick Taylor claims in his *Principles* that money is the greatest source of employee motivation. In fact, money helps employees survive, and may possibly be a reason for people to work, but that does not make it the ultimate source of motivation, as Edwards Deming (Zani, et al., 2011) points out.

Elton Mayo's Hawthorne experiment also revealed that human relationships and understanding attitudes are more motivating than money. Feeling that superiors take notice of them and strive to meet their needs makes employees more loyal and more committed to organisations (Bueno, 2002; Zani, et al., 2011).

In fact, several studies (for example, Zani, et al., 2011; Manzoor, 2012; Nantha, 2013; Harunavamwe and Kanengoni, 2013) state that the factors that affect employee motivation are recognition, increased responsibility, sense of accomplishment, confidence and the possibility of working flexible hours that allow them to balance family and work. That is, the published literature corroborates the fact that NFR are a more significant influence on increased work motivation and productivity than financial rewards.

This is essentially the application of Maslow's theories of motivation, as when the physiological and safety needs that financial rewards provide are met, social, self-esteem and self-fulfilment needs emerge which can be fulfilled by NFR. Thus, Herzberg's two-factor theory allows us to conclude that financial rewards are hygienic factors because when they meet expectations they do not generate dissatisfaction, but neither do they motivate, so it is up to the managers to be aware of the factors that motivate their employees (Camara, 2011) (Figure 1).

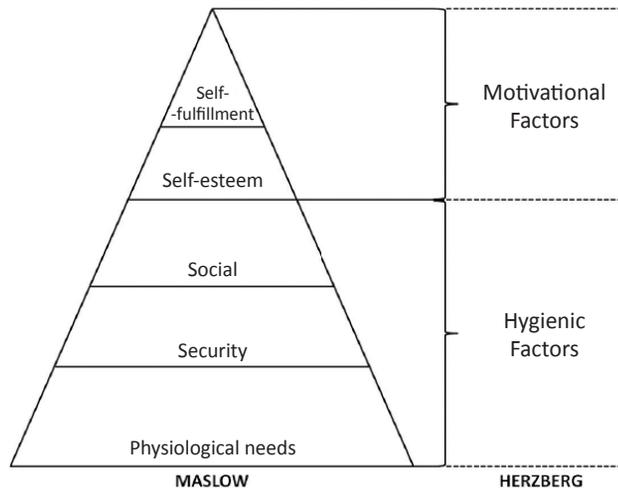


Figure 1 – Theories of Motivation

Source: (Camara, 2011)

Indeed, many published studies on motivation focus on the factors that influence it and on the existence of a positive relation between motivation and organizational performance. Manzoor's study (2012) found that when employees feel that their work is valued they become more motivated and contribute more significantly to organizational effectiveness.

However, the above theories of motivation only take into account the different levels of motivation and analyse them as if they were sequential levels. In order to overcome this limitation, Ryan and Deci (2000) developed the Self Determination Theory which, unlike other theories, does not deal with motivation as a single phenomenon and instead separates

intrinsic motivation from extrinsic motivation. The authors argue that individuals not only have different levels of motivation, they also have different types of motivation.

Of all the theories of motivation we encountered in the literature, we chose to use Self Determination Theory in this research because it seems to us the most likely to yield an answer to this study, as it focuses on the type (and not only on the intensity) of motivation. Thus, as mentioned above, our goal is to analyse the type of NFR (intrinsic and/or extrinsic) that influence the motivation (intrinsic and extrinsic) of Air Force civilian employees.

2. Methodology

This chapter begins by presenting and justifying the research strategy and design used in this study. The data collection instrument used, as well as the population and the research sample selected, are described below. Based on the literature review and bearing in mind the objectives of this study, we will now present the model of analysis, which we elaborated according to the research question, with the subsidiary questions and respective hypotheses. Finally, we will present the methods that will be used to analyse and treat the data collected in order to answer the research question.

a. Research strategy and design

Aires (2011) asserts that the choice of methodology must be fully justified by the research, both ontologically (set of ideas that researchers build about the world and themselves) and epistemologically (set of questions and ways of knowing), while also examining these concepts in specific ways (methodological domain).

In turn, Bryman (2012) combines quantitative strategy with objectivism (an ontological position that states that social phenomena and their meanings exist independently from researchers) and positivism (an epistemological domain that holds that science must be objectively constructed and free of preconceived notions, so that it can generate hypotheses that can be tested and that, once validated, can explain laws).

Therefore, we have decided to use a quantitative research strategy, as this research will adopt a hypothetical-deductive approach, that is, in order to answer the research question, the existing empirical evidence (objectivism) will be analysed and hypotheses will be deduced and subjected to empirical validation (positivism), within the universe of Air Force civilian employees and in light of the review of the literature.

In terms of research design, this research fits into the definition of a case study, which Bryman (2012) described as an opinion poll on a case with the intent of revealing important characteristics about its nature.

As for the phases of the research, we found it important to include exploratory interviews in the exploratory phase, to be conducted concurrently with the several preliminary readings outlined in the previous chapter. The selection of interviewees was based on the criteria recommended by Quivy and Campenhout (2008) regarding valid interlocutors, namely:

- Teachers and researchers in the field of research: Thus, interviews were conducted with Professor Paulo Lopes Henriques (researcher in the area of rewards and lecturer in the Master's Programme in Human Resource Management at Instituto Superior de Economia e Gestão-ISEG) and Professor José Luís Nascimento (researcher in the area of commitment and lecturer in the Master's Programme in Human Resource Management and in the PhD Programme in Organizational Behaviour at Instituto Superior de Ciências Sociais e Políticas-ISCSP);
- Expert witnesses: Interviews were conducted with Major-General Fangueiro da Mata, Air Force Director of Personnel and Lieutenant-Colonel Paes de Carvalho, Head of the Civilian Personnel Division of the Directorate of Air Force Personnel, because of the positions they occupy and of their vast experience in the management of civilian personnel;
- The target population of this study: Interviews were conducted with two female technical assistants.

In the analytic phase, data were collected by delivering a questionnaire survey to Air Force civilian employees and were subsequently processed and analysed. Finally, in the final phase, the results were assessed and discussed and the conclusions were presented, including this study's contribution to knowledge, recommendations and the limits of the research.

b. Population and sample

The research population was Air Force civilian employees, integrated into the general careers and bound by an employment contract in public functions for an indefinite period under the LTFP, and the convenience sample composed of employees who answered the questionnaire voluntarily.

A total 767 questionnaires were delivered, of which 418 were returned. Of these, six were eliminated, two because the respondents deliberately left the second part of the questionnaire blank, and four because they were returned after the deadline. Thus, the final sample is composed of 412 employees (a 53.7% response rate), which is considered very satisfactory, according to Huot's table (2002).

2.3. Model of analysis

According to Quivy and Campenhoudt (2008), the correct way to begin a research work is to enunciate the project in the form of a research question in which researchers attempt to express, as accurately as possible, what it is that they are endeavouring to know and understand better.

In light of the above, the research question that will prompt this study is:

RQ: To what extent do NFR, as a human resource management practice, influence the motivation of Air Force civilian employees?

This led to the formulation of the following subsidiary questions and their respective hypotheses:

SQ1: Is there a relation between the intrinsic and extrinsic dimensions of both NFR and motivation?

H1: Intrinsic NFR are not related to extrinsic NFR.

H2: Intrinsic motivation is not related to extrinsic motivation.

SQ2: What is the relationship between NFR and motivation?

H3: Intrinsic NFR are positively related to intrinsic motivation.

H4: Intrinsic NFR are positively related to extrinsic motivation.

H5: Extrinsic NFR are positively related to intrinsic motivation.

H6: Extrinsic NFR are positively related to extrinsic motivation.

Quivy and Campenhoudt (2008) state that several concepts and hypotheses must be combined to encompass the various aspects of the problem identified. To achieve this, we will present (figure 2) the articulation of the concepts and hypotheses described above, that is, the model of analysis for this research.

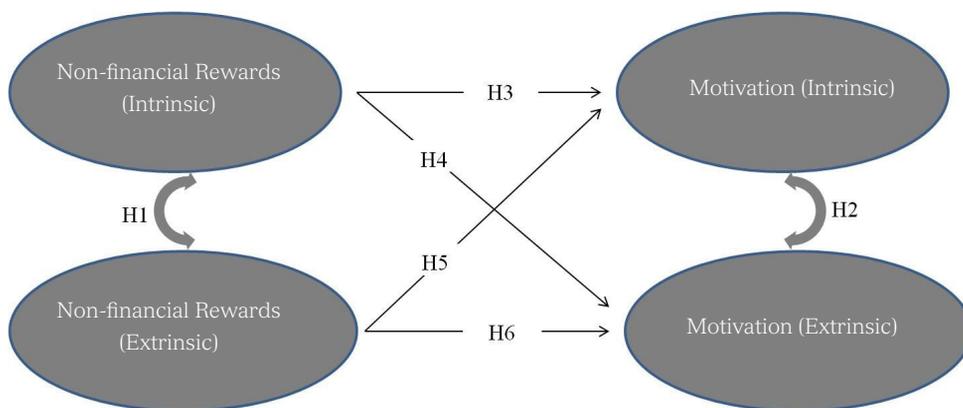


Figure 2 – Model of analysis

Source: (Author, 2015).

d. Data collection instrument

The data collection method used in the present research is a questionnaire survey. For Quivy and Campenhoudt (2008), the use of the questionnaire has benefits, such as guaranteeing employee anonymity, collecting a greater number of opinions and the fact that it enables numerous correlation analyses. Bearing in mind the objective of this study and the significant size of the population, these advantages determined our choice of this method.

As to structure, the questionnaire was put together by compiling two validated questionnaires, as the questionnaire elaborated by Tremblay, et al. (2009) which was used to assess motivation incorporates Ryan and Deci's Theory of Self-Determination (2000) and Chiang and Birtch's (2006) questionnaire on NFR.

The first part of the questionnaire consists in the analysis of motivation in the workplace by using a Likert type 7-point response scale, ranging from '0-Does not apply at all' to '7-Applies exactly'. The second part concerns the value assigned to the NFR practices used in the organization by using a Likert type 7-point response scale, ranging from '0-Very dissatisfied' to '7-Completely satisfied'. The last part records the demographic variables of the respondents, namely gender, age, seniority in the organization and career.

Before the questionnaire was delivered, six employees performed a test to determine the time required to answer the questionnaire, and also to ascertain whether the questions were relevant and comprehensible.

The questionnaires were applied in paper format, as 585 of the employees are Operational Assistants (76.3% of the population), who, for the most part, do not have access to computers to answer online questionnaires.

As Air Force units are significantly scattered in terms of location, we requested the assistance of the commanders of the Personnel Squadrons in the application and collection of the questionnaires

e. Methods of data analysis and treatment

Quivy and Campenhoudt (2008) state that data analysis serves not only for empirical verification, but also to interpret unexpected facts so that the hypotheses can be adjusted and to suggest improvements to the model of analysis or to propose future research.

In the present research, the data was analysed by different statistical procedures in separate phases. In the first phase, the instrument of measurement was validated against the sample for each of the concepts (NFR and motivation); in the second phase the final model proposed was tested; in the third phase the differences in the sample subgroups (that is, demographic variables, namely gender, age, seniority in the organization and career) were analysed; and, in the final phase, the moderation relationships between the demographic variables in the relationship between NFR and motivation were analysed.

The first phase (validation of the instrument against the sample) aimed to ensure that the questionnaire variables, that is, the items in each scale (also referred to statistically as manifest variables) effectively mediate the concepts under study - that is, the latent NFR and motivation variables (which are not directly measurable but can be measured from a set of manifested or observed indicators, Salgueiro, 2012) - to guarantee that the results obtained were reliable.

For this purpose, we began by establishing the reliability of the instrument of measurement, which is its ability to replicate the same results every time (Marôco and Garcia-Marques,

2006). We used SPSS and Cronbach's alpha coefficient, the ideal value of which is equal to or greater than 0.7 (Marôco and Garcia-Marques 2006; Marôco, 2011).

Later, the validity of the scale was tested by Exploratory Factor Analysis (AFE) (Hair, et al., 2006; Marôco, 2011). This verification was also operationalized with SPSS using maximum likelihood extraction with Promax oblique rotation (Marôco, 2011), the results of which reveal the existence or absence of two distinct dimensions (intrinsic and extrinsic) for each latent variable being measured (NFR and motivation) by analysing the distribution of the factorial weights of each item by the number of factors extracted from it.

After applying this method, we suspected that we were in the presence of a one-dimensional model (in which each variable corresponds to only one dimension), which required us to use Structural Equation Modelling to perform a Confirmatory Factor Analysis (CFA) of each of the latent variables (Hair, et al., 2006; Salgueiro, 2012) using LISREL. Using this technique allowed us to simultaneously estimate a set of multiple relations of dependence between variables (Salgueiro, 2012).

Confirming what we described above, the modelling resulted in adjustments having to be made to the model proposed. Indeed, analysing the model's goodness-of-fit indicators, namely Root Mean Square Error of Approximation (RMSEA), among others, and the factorial weights of each item, enabled us to eliminate the items (manifest variables) that did not adequately measure the latent variable. Based on the maximum likelihood extraction method and in order to increase the quality (goodness) of fit of the model proposed, the items with the lowest factorial weight were removed as they did not measure the variable adequately when compared to the others (Hair, et al., 2006).

The second phase (testing the final model proposed) consists in analysing the descriptive statistics of the model that was built from the individual analysis of each latent variable in the previous phase, as well as in analysing the model's adjustment using the model's quality of fit indicator, RMSEA. At this stage we were able to analyse the extent to which NFR influence motivation, as well as to determine which NFR contribute the most to employee motivation.

In the third phase, we investigated whether there were significant differences in the sample subgroups in relation to the latent variables (NFR and motivation), using a Student's t-test, in which differences are only considered significant when $p \leq 0.05$ (Marôco, 2011).

In the fourth and final phase, we analysed the presence of moderation by the demographic variables in the relation between NFR and motivation by using multigroup analysis, that is, according to gender, age, seniority in the organization and career. The moderator variable can influence the direction and/or intensity of the relationship between the independent (NFR) and dependent variables (Motivation) (Vieira, 2009).

The chi-square statistic difference was analysed for each demographic variable to test the null hypothesis (H_0), as when the latter is not rejected, we can conclude that the variable does not moderate the relationship between NFR and motivation (Salgueiro, 2012).

3. Results

a. Data collection

(1). Sample description

After administering the questionnaires, we verified that the final sample consists of 412 subjects, of whom 201 (48.8%) are female and 211 (51.2%) are male. The age of the subjects ranges from 32 to 66 years of age, the average age being 54 years.

Seniority in the organization varies between 2 and 46 years, the average being 29 years.

As for the subjects' careers, the majority belongs to the Operational Assistant career (n = 282, 68.4%), followed by the Technical Assistant (n = 119, 28.9%) and Senior Technician (n = 11, 2.7%) careers.

b. Analysis and presentation of results

(1). Validation of the instrument of measurement against the sample

(a). NFR Scale

Descriptive analysis of the items in the Intrinsic and Extrinsic NFR subscales

Considering 4 as the midpoint (scale of 1 to 7), and according to the descriptive statistics analysed, all Intrinsic NFR items can be said to have averages higher than the midpoint, and the most valued item for employees was 'Possibility of using skills' (5,15).

As for the Extrinsic NFR items, the item 'Possibility of promotion' is the one that presents an average below the midpoint (3,07), and the item 'Good relationship with co-employees' is the most valued by employees (5,61).

Regarding the consistency of the subscales, we verified that the Intrinsic NFR 6-item subscales returned a Cronbach's Alpha of 0.928 and the Extrinsic NFR 11-item subscales returned an Alpha of 0.913, which leads us to conclude that they have good internal consistency and are statistically reliable.

Exploratory factor analysis

Processing the EFA allowed us to extract two factors that account for 66.11% of the data variance. There is, however, a high correlation between the two extracted factors (0.751), as well as a homogeneous distribution of the factorial weights of the items that measure each of the dimensions (intrinsic and extrinsic) by these two factors. These results suggest that the items are measuring the latent NFR variable and are not making a distinction between the intrinsic and extrinsic dimensions. In other words, these results suggest that the construct is one-dimensional; nonetheless, this can be confirmed by confirmatory factor analysis (Hair, et al., 2006; Salgueiro, 2012).

Confirmatory Factor Analysis

After the research, we carried out confirmatory factor analyses to first test the original model proposed, in which the construct was two-dimensional (Intrinsic and Extrinsic NFR variables). The original model presented an unacceptable goodness-of-fit ($RMSEA > 0.08$) and an excessively high correlation (0.97) between Intrinsic and Extrinsic NFR (which suggests that we are in the presence of the same variable).

In order to improve the fit of the model, we removed item RE_1 'Possibility of promotion (perspective of career advancement)' because it had the lowest factorial weight. We verified that, in the new model, the correlation between the variables remained excessively high and that the model continued to present an unacceptable goodness-of-fit ($RMSEA > 0.08$).

As the excessively high correlation (0.97) between Intrinsic and Extrinsic RNF suggested that we were dealing with a single variable, we proceeded to test a one-dimensional solution, especially as that was the solution advised by the EFA (analysed before). After performing this verification, we found that the first one-dimensional model extracted also presented an unacceptable goodness-of-fit ($RMSEA > 0.08$).

In order to improve the fit of the model, the items with the lowest factorial weights were successively removed and a six-item one-dimensional measurement model was obtained, which presented an acceptable goodness-of-fit ($RMSEA \leq 0.08$).

Table 1 presents the other indicators of goodness-of-fit observed in each of the tested models of measurement, which show that the final model presents acceptable values for all indicators.

Table 1 - NFR Goodness-of-fit Indicators

| Statistical measurements | Reference values | Original Model (Two-Dimensional) | | One-Dimensional Model | |
|---|------------------|----------------------------------|-------|-----------------------|--------------|
| | | Initial | Final | Initial | Final |
| Absolute fit measurements | | | | | |
| Goodness-of-fit Index (GFI) | $\geq 0,9$ | 0.750 | 0.789 | 0.747 | 0.991 |
| Root Mean Square Error of Approximation (RMSEA) | $\leq 0,08$ | 0.136 | 0.128 | 0.137 | 0.026 |
| Incremental fit measurements | | | | | |
| Comparative Fit Index (CFI) | $> 0,9$ | 0.860 | 0.887 | 0.856 | 0.999 |
| Parsimony and Model Comparison Measurements | | | | | |
| χ^2/d | < 2 | 4.46 | 3.86 | 4.56 | 0.61 |

Source: (Author, 2015).

(2). Motivation scale

Descriptive analysis of the Intrinsic and Extrinsic Motivation subscale items

Considering a midpoint of 4 (scale of 1 to 7), and according to the descriptive statistics analysed, the items of both subscales were found to have averages above the midpoint. The items with the highest averages are 'I feel satisfaction when I perform difficult tasks successfully' (6,14) (intrinsic motivation), and 'I want to be successful In life' (6,04) (extrinsic motivation).

As for the consistency of the subscales, intrinsic motivation, with 3 items, presented an Alpha of 0.798 and extrinsic motivation, with 10 items, presented an Alpha of 0.918, which leads us to conclude that they present a good internal consistency, and are considered statistically reliable.

Exploratory factor analysis

Processing the EFA allowed us to extract two factors that account for 65.50% of the data variance. There is, however, an excessively high correlation between the two extracted factors (0.663), as well as a homogeneous distribution of the items that measure both dimensions (intrinsic and extrinsic) by these two factors. These results suggest that the items are not measuring intrinsic and extrinsic motivation separately, but only the motivation variable. In other words, just as it had occurred with the NFR scale, these results suggest that the construct is one-dimensional; nonetheless, this can be confirmed by confirmatory factor analysis (Hair, et al., 2006; Salgueiro, 2012).

Confirmatory Factor Analysis

After studying the statistics, we performed a CFA to test the original model in which the construct is two-dimensional (intrinsic motivation and extrinsic motivation variables). The model presented an unacceptable goodness-of-fit (RMSEA>0.08) and a high correlation (0.78) between intrinsic and extrinsic motivation.

In order to adjust the model, items with lower factorial weights (Hair, et al., 2006) were removed, but the extracted model continued to show an unacceptable goodness-of-fit (RMSEA>0.08) and the correlation between the latent variables remained high (0.73).

Given that Hair, et al. (2006) consider that there should be at least three items per factor, we chose not to remove more items to fit the model. As the strong correlation between the latent variables suggested that we were dealing with a single variable, we proceeded to test a one-dimensional solution, especially as that was the solution advised by the EFA (analysed before).

As a result, we found that the first one-dimensional model extracted also showed an unacceptable goodness-of-fit (RMSEA>0.08).

In order to improve the fit of the model, the items with lower factorial weights were

removed successively, starting with item MI_11 'I feel satisfaction when I perform difficult tasks successfully', until we arrived at a one-dimensional model of measurement composed of 6 items, which showed an acceptable goodness-of-fit (RMSEA ≤ 0.08).

Table 2 presents the other indicators of goodness-of-fit observed in each of the tested models of measurement, which show that the final model presents acceptable values for all indicators.

Table 2 – Motivation Goodness-of-fit Indicators

| Statistical measurements | Reference values | Original Model (Two-Dimensional) | | One-Dimensional Model | |
|---|------------------|----------------------------------|-------|-----------------------|--------------|
| | | Initial | Final | Initial | Final |
| Absolute fit measurements | | | | | |
| Goodness-of-fit Index (GFI) | $\geq 0,9$ | 0.719 | 0.956 | 0.662 | 0.978 |
| Root Mean Square Error of Approximation (RMSEA) | $\leq 0,08$ | 0.168 | 0.126 | 0.186 | 0.072 |
| Incremental fit measures | | | | | |
| ComparativeFitIndex (CFI) | $> 0,9$ | 0.824 | 0.966 | 0.781 | 0.987 |
| Parsimony and Model Comparison Measurements | | | | | |
| 2/d | < 2 | 6.02 | 3,43 | 7.37 | 1.73 |

Source: (Author, 2015).

(c). Hypothesis re-specification

As the statistical analysis suggested that the NFR and motivation variables were one-dimensional, hypotheses H3, H4, H5 and H6 were re-specified (removed) and a new hypothesis H3 was formulated: NFR are positively related to motivation.

(2). Test of the final model proposed

(a). Final Descriptive Statistics

The indexes referring to the two variables were calculated based on the measurement models obtained: NFR and motivation. These indexes were calculated by finding the mean of the items, weighted by the value of the factorial weight (Hair, et al., 2006), and it should be noted that as this transformation implied altering the measurement of the variable from an ordinal scale (7-point Likert scale) to a numeric scale (ranging from 0 to 7), the midpoint of the new scale became 3.5.

Thus, the descriptive statistics presented in table 3 show that the sample has NFR and motivation averages slightly above the midpoint (3.96 and 3.95, respectively). There is also a positive and significant correlation between these variables (0.746), which means that a

variation in NFR causes a positive change in motivation, thus validating hypothesis 3. Regarding the consistency of the subscales, we verified that the NFR 6-item scales returned a Cronbach's Alpha of 0.893 and the motivation 6-item scales returned an Alpha of 0.885, which leads us to conclude that they have good internal consistency.

Table 3 – Statistical Analysis and Correlation of the ‘NRF and Motivation’ Scales in the Final Model

| | | Average | Standard Deviation | 1 | 2 | Cronbach's Alpha |
|----|------------|---------|--------------------|--------|---|------------------|
| 1. | NFR | 3.96 | 0.955 | 1 | | 0.893 |
| 2. | Motivation | 3.95 | 0.971 | .746** | 1 | 0.885 |

** p<0.01

Source: (Author, 2015).

(b). Final model proposed

Once the changes suggested by the validation of the measurement models against the sample were identified, test procedures were performed and the model in Figure 3 presented an acceptable goodness-of-fit (RMSEA ≤0.08).

The statistical analysis also revealed that, according to the final model, the satisfaction with NFR accounts for 67.6% of the variance ($R^2 = 0.676$) in motivation.

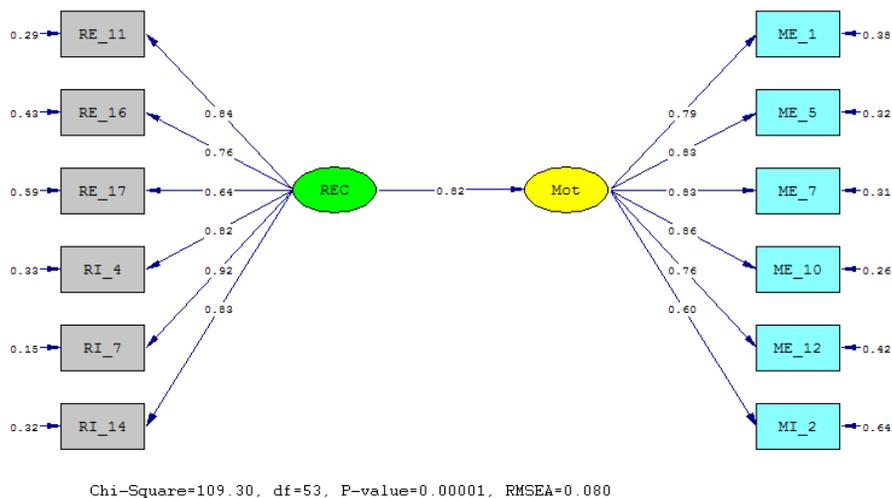


Figure 3 - Final model proposed

Source: (Author, 2015).

Therefore, the final model proposed allowed us to identify the NFR most valued by employees, that is, those that contribute the most to their motivation, presented in Tables 3 and 4.

Table 3 - NFR Variables

| NFR |
|--|
| Job satisfaction (RI_7) |
| Possibility of work-life balance (RE_11) |
| Possibility of using skills (RI_14) |
| Challenging work (RI_4) |
| Team spirit (RE_16) |
| Existence of vocational training and a professional development plan (RE_17) |

Source: (Author, 2015).

Table 4 - Motivation Variables

| Motivation |
|---|
| This is the kind of work I chose to do because it allows me to achieve some important goals (ME_10) |
| It is part of how I chose to live my life (ME_7) |
| I choose this type of work to achieve my career goals (ME_5) |
| This is the type of work I chose to do and it allows me to enjoy a certain lifestyle (ME_1) |
| This kind of work gives me a sense of security (ME_12) |
| I feel fulfilled while learning new things (MI_2) |

Source: (Author, 2015).

(3). Differences in the sample subgroups

In order to examine whether there were significant differences in the NFR and motivation scales for the sample subgroups, we used a Student's t-test, as the results presented take into account that differences are only considered significant when $p \leq 0,05$ (Marôco, 2011).

As for gender, analysing the average of the subjects in the sample allowed us to conclude that there are statistically significant differences in NFR ($p = 0.002$) and motivation ($p = 0.000$). Regarding satisfaction with NFR and motivation, we found that men's average values (4,10 and 4,11, respectively) are higher than the women's (3,81 and 3,77, respectively).

As to age, we concluded that there are statistically significant differences in NFR ($p = 0.035$) and motivation ($p = 0.050$). Regarding satisfaction with NFR and motivation, older subjects (≥ 54 years) have a higher average (4.05 and 4.03, respectively) than younger subjects (3.85 and 3.84, respectively).

As for seniority, we were able to conclude that there are statistically significant differences in NFR ($p = 0.029$) and motivation ($p = 0.016$). As to satisfaction with NFR and motivation,

subjects with more seniority (≥ 29 years) have a higher average (4.05 and 4.04, respectively) than younger subjects (3.84 and 3.81, respectively).

With regard to career, we concluded that there are only statistically significant differences in motivation ($p = 0.033$). Operational Assistants have a higher average (4.02) than Technical Assistants (3.80). A statistical analysis of Senior Technicians could not be conducted because the sample was too small.

(4). Analysis of moderation relationships

In order to determine if the demographic variables exert a moderating effect on the relationship of influence between NFR and motivation, we performed a multigroup analysis (Hair, et al., 2006; Salgueiro, 2012). The critical chi-square value was analysed for each demographic variable to test the null hypothesis (H_0) that the correlation matrix is invariant in the groups. That is, if H_0 is not rejected for each demographic variable, we can conclude that it does not moderate the relationship between NFR and motivation (Salgueiro, 2012). It should be noted that for a significance level of 0.05, H_0 is not rejected if the critical chi-square value with 1 degree of freedom (df) is less than 3,841 (Marôco, 2011).

Thus, the values obtained in table 6 show that for all demographic variables the null hypothesis of an invariant correlation matrix was not rejected, suggesting that they do not moderate the relationship between NFR and motivation.

Table 4 - Analysis of Moderation Relationships

| | | Demographic Variables | | | | Reference value | |
|----------------------|------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------|--------------|
| | | Gender | Age | Seniority | Career | | |
| Statistical analysis | Chi-Square | With restriction | 327.14 | 348.95 | 362.18 | 177.78 | 3.841 |
| | | Without restriction | 326.62 | 348.34 | 362.09 | 174.92 | |
| | Critical value (difference) | | 0.52 | 0.61 | 0.09 | 2.86 | |
| | Degrees of freedom | With restriction | 107 | 107 | 107 | 107 | |
| | | Without restriction | 106 | 106 | 106 | 106 | |
| | Difference | | 1 | 1 | 1 | 1 | |
| Conclusion* | | H_0 is not rejected | | |

* Critical Chi-Square value lower than the reference value implies the non-rejection of H_0

Source: (Author, 2015).

4. Discussion

The analysis performed allowed us to verify that NFR and motivation are one-dimensional and to conclude that NFR influence the motivation of Air Force civilian employees, as these variables are positively and significantly correlated and NFR account for 67,6% of the variance of motivation.

The results obtained also allowed us to identify the NFR that employees value the most and, consequently, those which most contribute to their motivation.

By detailing each NFR, we were able to verify that 'satisfaction at work' is the NFR employees most value. Thus, it is of the utmost importance that hierarchical superiors are aware of the expectations and needs of their subordinates, so that they are able to reward them in the way that they value the most.

As for 'possibility of work-life balance', direct supervisors should be able to coordinate their employees' needs with the needs of the organization at their level of responsibility.

With regard to 'possibility of using skills', 'challenging work' and 'existence of a training and professional development plan', superiors must have the capacity to assess the aspirations of employees in the performance of their duties, as well as any opportunities of enhancement that may arise or that may be proposed to the various Air Force bodies or other outside bodies.

As for 'team spirit', we believe that satisfaction with this NFR not only depends on the employees who are part of the team, but also depends on the supervisor's leadership and coordination capacity, which implies an effective knowledge not only of individuals, but also of the team dynamics.

Although there were significant differences in the NFR and motivational scales in relation to the sample subgroups, and although the present study focuses on the existence of a relation between NFR and motivation, we were able, based on the research conducted, to verify that the demographic variables do not moderate that relation, which suggests the presence of homogeneity in the expectations and needs of the employees who compose the sample.

By identifying the NFR that most contribute to employee motivation and, consequently, to the potential increase of performance levels, we believe that the results of the present study provide good contributions to knowledge in the field of human resource management, insofar as it can serve as a support tool for bodies/hierarchical supervisors with direction/command/leadership responsibilities, which in turn enhances organizational performance.

Considering that the objective of this research was to analyse the impact of NFR on the motivation of Air Force civilian employees, we believe this intention was achieved, since we were able to verify that NFR positively and significantly influence motivation. This objective was achieved with the help of the specific objectives, the first revealing the unidimensionality of each concept, and the second identifying which NFR could be included in a future scenario

where NFR policies would be created to enhance the functional performance of employees and, consequently, organizational performance.

Of the hypotheses formulated, H1: 'Intrinsic NFR are not related to Extrinsic NFR' and H2: 'Intrinsic motivation is not related to extrinsic motivation' were rejected. These variables were found to be so strongly correlated that EFA and CFA suggest that we are in the presence of the same construct, that is, they suggest the unidimensionality of each concept.

H3: 'NFR are positively related to motivation' was validated as the variables present a positive and significant correlation.

Thus, in response to the question, 'To what extent do NFR, as a human resource management practice, influence the motivation of Air Force civilian employees?' the analysis performed allowed us to verify that NFR, as a human resource practice, influence the motivation of civilian Air Force employees, as these variables are positively and significantly correlated, and NFR account for 67,6% of the variance in motivation.

The answer to the first subsidiary question is that there is a correlation between the intrinsic and extrinsic dimensions of both NFR and motivation. However, the correlation found is so strong that the EFA and CFA conducted suggest that we are in the presence of one-dimensional constructs (H3, H4, H5 and H6 had to be re-specified for that reason), therefore H1: 'Intrinsic NFR are not related to extrinsic NFR' and H2: 'Intrinsic motivation is not related to extrinsic motivation' were rejected.

Regarding the second subsidiary question, which was meant to clarify if there was a relation between NFR and motivation, we were able to demonstrate that there is a positive and significant relation between NFR and motivation, which suggests that NFR influence motivation. As mentioned in above, hypotheses H3, H4, H5 and H6 had to be re-specified, which resulted in a new hypothesis, H3: 'Extrinsic NFR are positively related to extrinsic motivation', which was validated. This corresponds to the course of action advised by Quivy and Campenhoudt (2008), that is, the hypotheses must be adjusted in the data analysis after the interpretation of unexpected facts.

Moreover, we analysed the moderation of the demographic variables in the relationship between NFR and motivation, and none of the variables were found to moderate the relationship, which suggests the presence of homogeneity in the expectations and needs of the employees in the sample.

Despite the previous result, significant differences were found in the NFR and motivation scales in the sample subgroups (demographic variables). It was found that men have a higher average than women in terms of satisfaction with NFR and motivation, as do older subjects and subjects with more seniority (≥ 54 years and ≥ 29 years, respectively). As for career, we were able to verify that there are only statistically significant differences in motivation, and that the subjects in the Operational Assistant career have a higher average than the subjects in the Technical Assistant career (we could not obtain results for the Senior Technician career because the sample was too small).

The analysis and the literature review allowed us to discover that NFR influence the motivation of civilian employees, as predicted by Maslow and Herzberg's models (Camara, 2011); however it was not possible to separate the intrinsic and extrinsic dimensions of both NFR and motivation, that is, of their specific nature, in contrast to the findings of earlier studies by Chiang and Birtch (2006) and Ryan and Deci (2000), respectively.

Regarding the contribution to knowledge, we believe that the conclusions obtained are of vital importance because they can contribute to the efficient management of human resources, which is listed as one of the Air Force's strategic objectives provided for in Order n. 87/2012 of 28 December by the Chief of General Staff of the Air Force.

In fact, it is our opinion that the results obtained in this study may constitute a support tool for bodies/hierarchical supervisors with direction/command/leadership responsibilities, inasmuch as it identifies the NFR that most contribute to employee motivation and, consequently, to the potential increase in performance levels.

Furthermore, we concluded that bodies/hierarchical superiors with direction/command/leadership responsibilities must be aware of the expectations/needs of employees, so that they can find a balance between the individual expectations of their subordinates and the needs of the organization by using the NFR that were found to enhance motivation and, consequently, individual and organizational performance.

As for recommendations, it is our opinion that these results should be disclosed to several Air Force bodies, namely the Personnel Division and the Appeals Division, so that they can help define a non-financial rewards promotion policy that will be disclosed to senior management.

Although the study sample was found to be highly satisfactory, the research was limited by the fact that most elements in the sample belonged to the Operational Assistant career (which is usually associated with a low level of schooling), and that the age range was high, which may have caused difficulties in understanding the questionnaire and, consequently, some lack of motivation to complete it. On the other hand, the fact that the number of employees in the Senior Technician career was low may have limited the analysis of this group in comparison with the other groups. Another possible limit is the fact that, since 2011, salary changes (career development) have been frozen, and this may have biased the responses to the questionnaire.

Concerning future research, our advice is that an analysis be conducted on the relation between NFR and variables other than motivation, specifically commitment to the organisation, taking into account the characteristics of both the task and the organisation. In a future analysis, it would be interesting to extend the model of analysis to other types of NFR that may be considered relevant in the organizational context under study.

Given that, to the best of our knowledge, no studies exist on the impact of NFR on motivation in the Armed Forces, we believe it to be pertinent to extend the present analysis to Air Force military personnel, as well as to the military and civilian personnel of the other branches of the Armed Forces, to compare the results obtained and to gain a more

comprehensive understanding regarding the operationalisation of the variables under study in those universes.

On the other hand, assuming that the national economic situation will tend to evolve positively, it is our suggestion that the present study be expanded to encompass a comparison between the two aspects of rewards (financial and non-financial) for the civilian and military personnel of the Armed Forces, so that a rewards system that contemplates both these aspects can be analysed and built, according to the employees' needs/expectations.

Conclusions

Considering that financial rewards in Public Administration are limited to basic salary and to the individual performance incentives provided for in SIADAP, that is, in specific legislation, this study was circumscribed to the analysis of the NFR (extrinsic and intrinsic) that have greater influence on the work motivation of Air Force civilian employees integrated into a general career and bound by an employment contract in public functions for an indefinite duration.

The objective of this research was to analyse the impact of NFR on the motivation of Air Force civilian employees and to identify which NFR most influence motivation to assess the relevance of implementing NFR policies to enhance employee performance and, consequently, organizational performance.

The results obtained allowed us to achieve the research objective, as we were able to analyse the impact of NFR on the motivation of Air Force civilian employees and demonstrate that a positive and significant relation exists between the variables, as well as to identify the NFR that employees value the most.

These results will allow us to evaluate the relevance of implementing NFR policies to enhance employee functional performance and, consequently, organizational performance.

To achieve this general objective, the first specific objective was defined to analyse the relationship between Intrinsic and Extrinsic NFR, as well as between Intrinsic and Extrinsic motivation. The results showed that there is such a high correlation between the intrinsic and extrinsic dimensions of both NFR and motivation that this suggests we are in the presence of one-dimensional constructs.

We believe that the second objective, which sought to identify which NFR better predicted motivation, was also achieved. In fact, the statistical analysis conducted allowed us to verify that these NFR are 'job satisfaction', 'possibility of work-life balance', 'possibility of using skills', 'challenging work', 'team spirit' and 'the existence of a vocational training and development plan'. These results allowed us to determine which NFR are likely to be included in a future NFR policy to enhance employee functional performance and, consequently, organizational performance.

In conclusion, we believe that this research, by confirming that there is a positive and significant relationship between NFR and motivation, and by revealing which NFR influence

motivation, contributes to the resolution of the problem under study and allows us to answer the research question, as NFR were found to influence the motivation of Air Force civilian employees, since NFR account for 67,6% of the variance in motivation.

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