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Abstract: Understanding that organizational communication is crucial for the consistent functioning of any establishment, this research assesses its influence on work-life balance, organizational climate, and job satisfaction among Portuguese firefighters, a rarely studied group. Effective organizational communication is identified as a potential pathway for nurturing a favorable work setting and bolstering employee contentment, essential elements of work-life balance. Data compiled from a group of 102 firefighters, using a sociodemographic questionnaire, the Work Social Climate Scale, and Portuguese versions of the ICA Communication Audit Survey Instrument and the Labor Satisfaction Questionnaire S20/23, unveil multiple significant correlations among various dimensions of the ICA, the Work Social Climate Scale, and communication metrics. Explicitly, correlations were discerned between received and sent communications and aspects of implication, support, and cohesion. Links were also evident between desired communications and the control dimension. Positive and statistically significant relationships were further observed between received and sent communications, all five satisfaction dimensions, necessary outgoing communications and the physical environment, and required outgoing communications and benefits, highlighting the pivotal role of adept communication in augmenting work-life balance, organizational climate, and job satisfaction among firefighters.

Keywords: Organizational Communication; High-Risk Professions; Firefighter Job Satisfaction; Organizational Climate; Work-Life Balance

1. Introduction

Communication is the foundation of all human interaction, including within organizations [1–3]. The interest in studying organizational communication stems from the fact that it is a pivotal component in any organization, capable of leading to behaviors more or less aligned with individual, group, and/or organizational objectives [2,3]. Organizational effectiveness hinges on leadership, team-building, role allocation, and interpersonal dynamics, as well as on member relationships and the feedback derived from assessing a message's impact on its recipients [1–3].

In recent decades, the extensive development associated with communication, and the importance this concept has assumed in contemporary organizations, has led to a variety of discourses on organizational communication [3]. Over time, various definitions of organizational communication have been proposed, for example, organizational communication is like a dynamic and continuous process of creating collective and coordinated structures of meaning, through symbolic practices aimed at achieving organizational objectives [4]. In other words, organizational communication is an active, versatile, and timeless tool that adapts and accompanies the company throughout its life cycle. It acts as a lever for organizational change, evolution, and growth, continuously renewing and redefining structures, paradigms, dynamics, and institutional practices (both internal and external), allowing better adaptation to the general circumstances of the time (economic, political, and social).

Research suggests that organizational communication is critical for the success and effectiveness of organizations. It permeates all activities of companies/organizations and positively or negatively influences individual interactions within the organizational context. Thus, organizational communication is a fundamental aspect for the smooth operation of any organization, as it allows for the creation and maintenance of a positive climate and satisfaction among employees, contributing to the achievement of organizational objectives and goals [1,5-6]. Organizational communication fosters a positive work environment and employee satisfaction by building a system of interactions and shared symbolic meanings that shape worker behavior, leading to higher satisfaction, commitment, a favorable climate, lower absenteeism, reduced turnover, and increased productivity [7–9].

Based on the information previously explained, communication plays a predominant role in various organizational domains. Its importance is inherent in all work processes, especially in high-risk professions like firefighters, where their activities depend on communications [10,11]. Communication is crucial to firefighting operations, yet prone to breakdowns due to the complexity of human behavior, with factors such as emotional state, biases, communication medium, conflicts of interest, religion, status, specialization, education, culture, gender, and age contributing to these failures.

Despite previous research identifying the need for more studies on communication in high-risk professions [11], this field still requires more research momentum. Currently, little is known about how and in what way firefighters perceive their communicative role as key players in their organizational environment. Furthermore, over the years, some researchers have studied the associations between communication, climate, and satisfaction and concluded that organizational communication plays an important role in organizational climate and job satisfaction [5,12]. The analysis of these relationships has not been explored in the target population or in the sociodemographic and professional variables under study, hence the extreme importance of this research. This research aimed to explore the relationship between organizational communication, organizational climate, and job satisfaction in salaried firefighters, considering sociodemographic and professional variables: gender and work-life balance. Therefore, based on the objective and empirical studies, this study aims to characterize organizational communication, evaluate organizational climate, and job satisfaction of firefighters, analyzing the possible relationships between constructs and their dimensions. As general hypotheses, it is expected to find positive and significant relationships between organizational communication and organizational climate; and between organizational communication and job satisfaction, with the latter expected to find high or very high levels of job satisfaction in firefighters.

2. Materials and Methods

2.1. Participants

102 salaried firefighters participated, the majority of whom were male (N= 92, 90.2%), aged between 20 and 61 years (M= 39.72, SD= 10.27). Of the firefighters surveyed, the predominant marital status was married/in a civil partnership (N= 61, 59.8%), 38.2% (N= 39) stated they had 2 children, and 51.0% (N= 52) had completed 12 years of education. In addition to sociodemographic measures, other additional data showed that the firefighters who participated in the study reported pre-hospital emergencies as the service causing them the most emotional strain (N= 57, 55.9%), 87.3% (N= 89) worked shifts, 51.0% (N= 52) had between 6 and 20 years of service, and a significant percentage (N= 69, 67.6%) felt that their professional life interfered with their personal life.

2.2. Instruments

For the assessment of organisational communication, the ICA Communication Audit Survey Instrument [13], modified [14] and adapted for the Portuguese population [15] was used. The instrument consists of two parts: the first with 16 items, answered on a 5-point Likert scale (from 1 - Very little; to 5 - Very much), evaluates the amount of communication the subject receives and the

amount they need to receive; the second, with 7 items on a 5-point Likert scale, assesses the amount of communication the subject sends and the amount they need to send. This instrument measures 4 factors: received, desired, sent, and need to be sent [15].

For the collection of organisational climate data, the Work Social Climate Scale[16], adapted and validated for the Portuguese population [17] was used.This instrument consists of 90 items, divided into 10 subscales: involvement, cohesion, support, autonomy, organisation, pressure, clarity, control, innovation, and comfort. These 10 subscales are organised into 3 dimensions: relationships, self-realisation, and stability/change. The relationships dimension includes the subscales of involvement, cohesion, and support; the self-realisation dimension is configured by the subscales of autonomy, organisation, and pressure; and the stability/change dimension includes the subscales of clarity, control, innovation, and comfort. The scales are measured from 9 items, while the dimensions are configured by 27, 27, and 37 items, respectively. The scale is completed with a dichotomous response of true and false. Given the high number of items, after consulting the authors, we chose to evaluate only 5 subscales: involvement (degree of concern and commitment of workers to their activities), cohesion (helpfulness and kindness among workers), support (effort of leaders to encourage and create a good working environment), pressure (urgency and pressure that dominates the work environment), and control (use of rules and pressure to control workers) [17].

For the assessment of job satisfaction, the Portuguese version of the Job Satisfaction Questionnaire S20/23 [18], adapted for the Portuguese population [19] was used. This instrument consists of 23 items, answered on a 7-point Likert scale (from 1 - Very dissatisfied; to 7 - Very satisfied). This version measures 5 factors: supervision, physical environment, benefits, intrinsic, and participation [19]. Sociodemographic and profissional data were also collected: gender, years of service, work-life balance.

2.3. Procedure

For the preparation of this research, the authors of the instruments were initially contacted to obtain permission for their use in this study. Once the population and instruments to be used were defined, we contacted the Commanders of the volunteer fire brigades of Braga and Vila Verde and the professional firefighters of Braga and distributed questionnaires to a volunteer firefighter from Évora who is part of our network of contacts. In addition, the anonymous and confidential nature of the data was ensured. The firefighters' responses were subsequently coded and analysed using the statistical software package Statistical Package for Social Sciences (SPSS), version 23. Using the Kolmogorov-Smirnov test, an exploratory analysis of the data was conducted to verify if the sample follows a normal distribution. Items presented values above .05, so parametric tests were used. The nature of the variables was also considered when selecting the test to use. A descriptive analysis of the study sample was then conducted. Pearson correlation tests (r) were also used to explore relationships between organisational communication, organisational climate, and job satisfaction. The intensity of the correlation was read according to the following criteria: < .20 - very weak, ≥ .20 to < .40 - weak, ≥ .40 to < .70 - moderate, ≥ .70 to < .90 - strong, and ≥ .90 - very strong [21].

3. Results

Initially, we explored descriptively the different constructs and their dimensions (see Table 1), followed by a description of the main results according to the general objectives stated, as well as other complementary analyses.

Table 1. Means, standard deviations, minimums, maximums, Cronbach's alphas, p-values, and respective factors.

Variables	M	SD	Mín.	Máx.	Cronbach's Alphas	pᵃ
Organizational Communication						
Received	52.38	11.14	16	80	.92	.00

Desired	66.10	11.91	16	80	.95	.00
Sent	20.51	4.97	6	30	.86	.00
Need to be sent	28.14	5.56	7	35	.91	.00
Total	167.21	26.52	45	225	.95	–
Organizational Climate						
Involvement	4.78	2.42	0	9	.75	.00
Cohesion	4.98	1.82	0	9	.48	.00
Support	4.33	1.94	0	9	.50	.00
Pressure	5.09	1.71	0	9	.35	.00
Contro	5.93	1.39	0	9	.22	.00
Relations (involvement + cohesion + support)	14.01	5.44	0	27	.83	.00
Job Satisfaction						
Supervision	25.86	8.63	6	42	.94	.00
Physical environment	22.14	7.86	5	35	.93	.00
Benefit	19.30	5.86	4	28	.90	.00
Intrinsic	16.94	5.82	4	28	.90	.00
Participation	16.22	4.94	4	28	.71	.00
Total	100.31	28.98	23	161	.97	–

[a]Estimated by the one-sample t-test.

3.1. Relations between organizational communication, organizational climate, and job satisfaction

In this study, we aimed to verify if organizational communication is related to organizational climate and job satisfaction. Thus, in the analysis of associations between organizational communication and organizational climate, it was possible to verify very statistically significant, positive, and moderate differences between received and involvement ($r(84)= 43$, $p<.01$) and received and support ($r(81)= .41$, $p<.01$); and, very statistically significant, positive, and weak between received and cohesion ($r(84)= .37$, $p<.01$), sent and involvement ($r(98)= .29$, $p<.01$), sent and support ($r(94)= .28$, $p<.01$) and desired and control ($r(83)= 29$, $p<.01$). Specifically, we found that involvement and support increase when the received and sent communications increase, cohesion increases when the received communications increase, and finally, control is greater when the desired communications increase (Table 2).

Table 2. Associations between organizational communication and organizational climate.

Variables	Involvement	Cohesion	Support	Pressure	Control
Received	.43**	.37**	.41**	-.18***	.09
Desired	.15	.08	.01	.06	.29**
Sent	.29**	.19***	.28**	-.16	.04
Need to be sent	.09	.07	.03	.06	.20***

Note: The following table differs in significance values as follows: * $p<.05$; ** $p<.01$; *** $p<.10$.

The Pearson test was also used to compare organizational communication and job satisfaction. The analysis of the tests showed us a very statistically significant, positive, and strong relationship between received and participation ($r(82)= .70$, $p<.01$); very statistically significant, positive, and moderate relationships between received and supervision ($r(83)= .67$, $p<.01$), received and physical environment ($r(85)= .56$, $p<.01$), received and benefits ($r(85)= .61$, $p<.01$), received and intrinsic ($r(85)= .54$, $p<.01$), sent and supervision ($r(96)= .42$, $p<.01$), sent and benefits ($r(99)= .50$, $p<.01$) and sent and participation ($r(93)= .43$, $p<.01$); very statistically significant, positive, and weak relationships between sent and physical environment ($r(99)= .35$, $p<.01$), sent and intrinsic ($r(99)= .34$, $p<.01$) and need to be sent and physical environment ($r(97)= .26$, $p<.01$); and, statistically significant, positive, and weak between need to be sent and benefits ($r(97)= .22$, $p<.05$). Particularly, it was possible to verify that satisfaction with supervision, the physical environment, benefits, intrinsic, and

participation increase when the received and sent communications increase; and satisfaction with the physical environment and benefits increase when the communications that need to be sent increase (Table 3).

Table 3. Associations between organizational communication and job satisfaction.

Variables	Supervision	Physical environment	Benefits	Intrinsic	Participation
Received	.67**	.56**	.61**	.54**	.70**
Desired	-.01	.18***	.16	.05	.16
Sent	.42**	.35**	.50**	.34**	.43**
Need to be sent	.06	.26**	.22*	.14	.12

Note: The following table differs in significance values as follows: * p<.05; ** p<.01; *** p<.10.

3.2. Relations between organizational communication, organizational climate, and job satisfaction

To understand if there are statistically significant differences based on gender regarding organizational communication, organizational climate, and job satisfaction, the student's t-test was conducted. From the results, in organizational communication, a very statistically significant difference was found in the received [t(85)= 4.23, p= .00] and statistically significant differences in the sent [t(99)= 2.20, p= .03] and those that need to be sent [t(97)= 2.23, p= .03]. Higher average scores were recorded in males – received (M= 53.95, SD= 10.29), sent (M= 20.87, SD= 4.82), and need to be sent (M= 28.55, SD= 5.29) – compared to females – received (M= 38.78, SD= 9.13), sent (M= 17.30, SD= 5.40), and need to be sent (M= 24.50, SD= 6.79). No statistically significant difference was found in the desired [t(8.72)= 1.18, p= .27].

Regarding the organizational climate, we found very statistically significant differences in involvement [t(99)= 3.46, p= .00] and cohesion [t(99)= 3.66, p= .00] and a statistically significant difference in support [t(95)= 2.79, p= .01]. The results showed higher average scores in the male group – involvement (M= 5.04, SD= 2.29), cohesion (M= 5.19, SD= 1.76), and support (M= 4.50, SD= 1.92) – compared to the female group – involvement (M= 2.40, SD= 2.27), cohesion (M= 3.10, SD= 1.10), and support (M= 2.67, SD= 1.32). No statistically significant differences were found in pressure [t(98)= -1.80, p= .08] and control [t(99)= 1.77, p= .08].

Finally, in job satisfaction, we found very statistically significant differences in supervision [t(97)= 2.100, p= .00] and participation [t(94)= 3.36, p= .00] and statistically significant differences in the physical environment [t(100)= 2.82, p= .01], benefits [t(100)= 2.70, p= .01], and intrinsic [t(100)= 2.81, p= .01]. Higher averages were recorded in males – supervision (M= 26.70, SD= 8.38), physical environment (M= 22.84, SD= 7.60), benefits (M= 19.80, SD= 5.69), intrinsic (M= 17.46, SD= 5.65), and participation (M= 16.77, SD= 4.83) – compared to females – supervision (M= 18.40, SD= 7.55), physical environment (M= 15.70, SD= 7.59), benefits (M= 14.70, SD= 5.62), intrinsic (M= 12.20, SD= 5.43), and participation (M= 11.50, SD= 3.21).

3.3. Organizational Communication, Organizational Climate, and Job Satisfaction Based on Work-Life Balance

The same procedure, from the previous point, was carried out to study statistically significant differences in organizational communication, organizational climate, and job satisfaction based on work-life balance. The results did not reveal statistically significant differences in the dimensions of organizational communication: received [t(85)= -1.29, p= .20], desired [t(83)= .75, p= .46], sent [t(99)= -.41, p= .68], and need to be sent [t(97)= 1.18, p= .24]. We also did not find statistically significant differences in the sub-scales of the organizational climate: involvement [t(99)= -1.97, p= .05], cohesion [t(99)= .51, p= .61], support [t(95)= -.72, p= .48], pressure [t(98)= 1.76, p= .08], and control [t(99)= .57, p= .57].

Lastly, in job satisfaction, we found statistically significant differences in intrinsic [t(77.07)= -2.15, p= .04] and participation [t(94)= -2.59, p= .01]. Higher averages were recorded in the group that considered that professional life does not interfere with personal life – intrinsic (M= 18.58, SD= 4.89) and participation (M= 17.97, SD= 4.29) – compared to the group that considered that professional life interferes with personal life – intrinsic (M= 16.16, SD= 6.09) and participation (M= 15.30, SD= 5.04). No statistically significant differences were found in supervision [t(97)= -1.91, p= .06], physical environment [t(100)= -1.75, p= .08], and benefits [t(100)= -1.83, p= .07].

4. Discussion

This study explored the complex interplay between organizational communication, organizational climate, and job satisfaction among salaried firefighters, with a particular emphasis on the influences of gender and work-life balance. Our research aimed to characterize the nuances of organizational communication within fire departments, evaluate the prevailing organizational climate, and assess the level of job satisfaction among firefighters, while exploring the potential interconnections between these constructs and their dimensions.

Consistent with the previous theoretical underpinnings [1–3], our findings indicated a notable gap in the firefighters' communication needs. Firefighters expressed a desire for more robust communication channels, both in receiving and disseminating information, suggesting a potential shortfall in current communication practices within fire departments.

In assessing the organizational climate, our study revealed a work environment characterized by strict rule enforcement and high pressure from superiors, resonating with previous findings [17]. Despite these challenges, there was a strong sense of camaraderie and commitment among colleagues, contributing positively to the overall climate. However, the leadership's efforts in creating a supportive work environment were perceived as lacking, a finding that diverges from the more positive climates reported in earlier studies.

The job satisfaction aspect of our study presented a complex picture. While certain dimensions like participation and the physical work environment scored high in satisfaction, other areas did not meet the high levels of satisfaction hypothesized, challenging our initial expectations [19]. This suggests a nuanced understanding of job satisfaction among firefighters, influenced by various factors including rank and role within the department.

The relationship between organizational communication and the constructs of organizational climate and job satisfaction was significant and multifaceted. Improved communication was linked to better perceptions of the organizational climate and higher job satisfaction, aligning with the previous research [5,21]. This highlights the critical role of effective communication in shaping a positive work environment and enhancing job satisfaction.

Gender and work-life balance emerged as influential factors in this dynamic. Variations in communication needs, perceptions of the organizational climate, and levels of job satisfaction were observed when analyzed through these lenses, underscoring the importance of considering such factors in organizational strategies.

This study, while comprehensive, is not without its limitations. The sample size, particularly the representation of female firefighters, may limit the generalizability of our findings. Additionally, the cross-sectional nature of the study restricts our ability to draw causal inferences. Future research should aim to include a more diverse and representative sample, potentially extending the study to different firefighting contexts or regions. Longitudinal studies could provide deeper insights into how these relationships evolve over time. Furthermore, qualitative research methods could be employed to gain a richer understanding of the personal experiences and perceptions of firefighters regarding organizational communication, climate, and job satisfaction. Our study contributes valuable insights into the dynamics of organizational communication, climate, and job satisfaction in the firefighting profession. It underscores the importance of effective communication and highlights the need for leadership to focus on creating a supportive and positive work environment, considering the nuances introduced by gender and work-life balance. The findings from this study can inform future strategies aimed at enhancing the overall well-being and job satisfaction of firefighters.

5. Conclusions

In conclusion, this study elucidates the pivotal role of organizational communication in fostering a supportive organizational climate and enhancing job satisfaction among Portuguese firefighters. The findings suggest that a robust flow of communication—both received and disseminated—correlates with improved work-life balance and satisfaction across various job dimensions. These results indicate that communication fulfills more than an informational role; it acts as a cornerstone for creating an environment where firefighters feel supported, involved, and satisfied with their work.

The implications of these findings are profound, particularly for high-risk professions where effective communication is essential not only for operational success but also for the well-being of the personnel. The study also sheds light on the significance of considering gender and work-life balance as key factors influencing the perceptions and needs of organizational communication. Future efforts to improve communication within fire departments should consider the diverse needs of their members, aiming to establish a more inclusive and supportive organizational climate. This research provides a foundation for such endeavors and underscores the need for continuous exploration into the intricate dynamics of communication within high-risk work environments.

Institutional Review Board Statement: The study was conducted in accordance with the Declaration of Helsinki, and approved by the Ethics Committee: for Technology, Social Sciences and Humanities" (CETCH) of Universidade Católica Portuguesa.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: Data will be made available upon request by contacting the corresponding author.

Conflicts of Interest: The author declares no conflict of interest.

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