



QUALITY ASSESSMENT IN FIREFIGHTERS SERVICES: A STUDY CASE IN SAO PAULO STATE

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Abstract: This article aims to propose an assessment of the quality of the public emergency service of a fire department, observing the process of identifying failures due to uncertainty about performance. There are few studies on the assessment of quality in public fire services through the analysis of customer bias and employee bias. An exploratory research was carried out using a Servperf questionnaire adapted for two stakeholders: customers and employees; observing the perception of the quality of operational services in the Fire Department of the State of São Paulo, Brazil. The main results illustrate that assurance and security were dimensions of the instrument that represent the quality of fire services by firefighters in the analysis of both groups, with few discrepancies between internal and external customers. It was also found that the importance attributed to services did not influence the assessment of the quality of services for these analyses. However, other characteristics need to be analyzed. Training of teams to deal with the professionals themselves in crisis. Training in humanized and agile care, inclusive in situations of multiple victims and demonstration of individualized care and sensitivity to the people served. Therefore, the creation of psychosocial support and protocols for empathetic action in the service, through psychological support after the service is the beginning.. The finding suggests managerial implications for leadership to further improve the operational services of firefighters.

Keywords: Firefighters Services, Assessment Quality, Services Importance, Customer Satisfaction.

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1. Introduction

Emergency public service are exclusive of public management direct and associated with government specific customers services. Services are intended for society and designed by executive power, where responsibly sourced are transmitted for states, in health and public security area (São Paulo, 1989).

In Public Security the services have been distributed around of order guarantee and public preservation, mainly in society safety (Lima, Sinhoretto & Bueno, 2015; Saporì, 2007). In Public Health, the services have been protection and complete social welfare, whether in intra-hospital or pre hospital care - considering the intra-hospital the assistance performed within hospitals and pre-hospital the assistance performed before arrival in the hospital environment (Minayo & Deslandes, 2008).

Now, at scenery of complete Civil Defense and emergency services, the department of Mobile Attendance Urgency Services (MAUS) and Fire Department (Lei & Jolibert, 2012) are public organizations important in charge of promoter of quality in

operational public services. In this case, the attention goes to Fire Department because the management is articulate within health and public security area, as also because give in big portfolio of services for society, graced by appreciations and social respect (Ibope, 2018).

In observing the government policies aimed at theses public organizations, became investigate interesting the quality of public emergency services offers by customers and collaborators perception bias (Dos Santos & Mainardes, 2018; Ramseook-M., Lukea-B. & Naidoo, 2010), once the public power not has join forces to overcome classic view of perspective of services of firefighters in Brazilian, characterized by with little lack of investment and existence of political forces in their management (Meisler & Vigoda Gadot, 2014 Riaz, Batool & Saad, 2019).

Thus, the main aim of current study is the understood and investigated the quality assessment in operational firefighters' services by an applicate exploratory survey (Oh & Kim, 2017) with through a Servperf-Adapted questionnaire, with destined on the

imminence of services improving (Abzari et al, 2011). The **Figure 1** demonstrate the research problem map.

For illustrate, the present paper was divided in five sections. The introduction presents a context and research problems. In followed has shown a literature theoretical framework on services assessment. The third part presents the research method. The part fourth analyzes the results and discusses the main findings and the fifth part presents the conclusion with limitations of study present.

2. Theoretical Framework

The first step began with a systemic bibliographic review, with timespan ten years, on public security and on fire department area with article search in English, Portuguese and Spanish in data base Science Direct, W.O.S., Emerald e Scopus. The analysis was index by START® software with includes and excludes specific criteria. Thn, historically, quality assessment begin with study in companies that measure the organizational image in market share (Oliver, 1981; Rust & Oliver, 1993) and, over time, other skills were created to various purposes, understood in two path - The first to understand the satisfaction as a result of customers experience (Parasuraman, Zeithaml & Berry, 1985:1988) and the second as integral part of consumers perceptual and of the evaluative and psychological perspectives of users (Yi, 1990).

By noticing this path, most practices are referenced from Nordic or American thought (Lopes, Pereira & Vieira, 2009) applied as a result of consumer experience within principle of discrepancy theory (Fornell, 1992; Grönroos, 1984; Oliver, 1981; Parasuraman, Zeithaml & Berry, 1988). This way it possible assess the satisfaction by services quality perception.

Somehow, instrument latest study has compared them to performance by applying them to one or more measures against competitors (Jaiswal & Lemmink, 2017) and by resorting a need to provide 10 specific applicability in organizations. Finally, everyone studies enhance the organizational performance process, as a it aims for excellence in customer service.

By analyzing also public services, the assessments aimed to measure the quality of services based on a global understanding of market. It began with an instrument created by Canadians cited by Strickland (1998) as Canadian Center of Management. After, many others instrument were created in the world, where highlight the Swedish Customer Satisfaction Barometer (SCSB), American Customer Satisfaction Index (ACSI) and European Customer Satisfaction Index (ECSI) (Gronholdt, Martensen & Kristensen, 2000; Lopes, Pereira & Vieira, 2009).

When looking to meet a specific need for services in regional and organizational levels, many instrument was inserted and search on subjective perspective of customers, where the most structured was in nonconformity paradigm (Grönroos, 1984; Parasuraman, Zeithaml & Berry, 1985) or adapted of models traditional already designed for satisfaction assessment by according whit organizations characteristics (Brady & Cronin Jr, 2001; Seth, Deshmukh & Vrat, 2005).

Currently, there are research applied in diversify organizations as United kingdom (Donnelly et al., 2006), EUA (Maguire & Johnson, 2010), Pakistan (Akhtar, Khizer & Sadaqat, 2011), Taiwan (Min Chen et al., 2014), Greece (Bouranta, Siskos & Tsotsolas, 2015), Portugal (Sarrico, Ferreira & Silva, 2013) and

Denmark (Janstrup et al., 2017). However, it is highlight important that most research applied a person and subjective analysis for customers satisfaction and the most company's analyses showed a culture behind to quality assessments of services (Brady & Cronin Jr, 2001). It should be highlighted the rise in public management, where researches were applied not because a specific necessary but because of public power exigency, because It aimed a comparative analysis as understand form the services quality (Kang, Hong & Lee, 2009).

In this way, In Brazil, the Public Services began also step first with Nacional Public Management and Bureaucratization Program and Digital Citizenship Platform, whose emphasize are better public services Brazilian and illustrate services portfolio for your users (Brasil, 2005). Still in this perspective, were created Standard Satisfaction Survey Instrument (SSSI) whose emphasize are assessment aspect of public services by users (Batista, De Paiva, 2014) and the Federal Law nº 13.460 on November 12, 2017 that contextualized public services quality and topic follow-up to assessment services continued (Brasil, 2017).

Although of exist a public organization small number that practices realized of quality assessment, has a perception that when pointing public organizations, even in face of law existence, practices not are been planned in organizations, mainly, in public organizations as the Fires Department. According to theory, the position of organization on direct public administration (Araújo et al., 2014), the traditional view of institution in services safety (Mastrofski, Reisig & Mccluskey, 2002) and the services exclusivity (Eickhoff & Sznclwar, 2012), do have interest merely as a matter of subjective applicability, it not justified to organizations apply practice of quality assessment in services.

One precursor research applied for satisfaction user's assessment in emergency public services for firefighters of Military Police São Paulo State was illustrate by Ferreira (2000). However, your research has been criticized the approach, simplicity and reliability of results. While not being reputable, it was the first identified the quality in public services to area security for firefighters. Therefore, in considering to reference cited as point start, the study intends to understand the quality process emergency public services in a Fire Department and finally, have a opportunity of illustrate the perception of customers when importance services and importance of quality assessment of services, with actions for organizations improvements.

3. Research Method

This study was based on academic research principle and perceptions of practice situations. It is descriptive, exploratory study, referenced in production engineering and squared as an applicated research by quantitative method (Paschoarelli, Medola & Bonfim, 2015). The object of study was the 9th Fire Department of the State of São Paulo, divided into four Fire Department Subgroups (SBC) in the following regions: 1st SBC - Ribeirão Preto; 2nd SBC - Franca; 3rd SBC - Araraquara; and 4th SBC - São Carlos. The Fire Brigades are public organizations of the executive branch. They are part of the São Paulo State Military Police and the State Public Safety Secretariat.

Their management is based on Systems Thinking - serving citizens in terms of public protection and safety, with quality and within the principles of community services and legal protection.

Public Emergency Services (PES) cover a wide range of activities for society related to risk situations and social emergencies (Abelsson, 2018). They have been classified into three major groups, but are especially classified into firefighting services, emergency medical services and rescue services (Pinto, 2010). Then, the research was inserted in the discrepancy theory (Grönros, 1984), with approach of instrument SERVPERF (Cronin & Taylor, 1992) for both, customers external and internal.

That assessment only according perception of customers by SERVPERF. Is important highlight, as write about SERVPERF in five years last, the main results of research were concentrated in police area and the larger extension of research been in Europe and American with grow-up for other places as Asia, India and Africa where few studies were concerted on fires department.

The affirmatives of instrument were translated, adapted and send to a technical committee because of terms and linguistics defines that describes connexons and firefighter's context (Carvalho et al., 2006; Dos Santos & Mainardes, 2018; Kumar, Sujit & Charles, 2018) beyond of security activities (McLaughlin, 2009). After the adaptation of the survey instrument was a carrying out a structured pre-test questionnaire to anonymous persons. The questionnaire is important for instrument align. It remained with 13 statements varying on the seven-point Likert scale, 1 (strongly disagree) to 7 (totally agree). The research was authorized according to ethical procedures described in Informed Consent Form (ICF) and approved by Human Research Ethics Committee of São Carlos Federal University (UFSCar) under number CAAE: 93466418.5.0000.5504.

The data collection phase was conducted over a 180-day period between the second semester of 2017 and first semester of 2018. A total of 342 valid responses were obtained, with 10 being discarded due to inconsistencies. Data analysis adhered to the instrument's assumptions and properties to ensure result quality and reliability (Souza, Alexandre & Guirardello, 2017). The data were processed using SPSS (Statistical Package for the Social Sciences) and R software, enabling agile, dynamic and precise analyses consistent with traditional survey research methods.

Although the survey was originally conducted in 2017-2018, the present study underwent a new interpretative analysis through the lens of contemporary approaches focused on mental health and organizational well-being. This new perspective allowed for broader understanding of the subjective factors involved in quality perception, highlighting the psychosocial impact of working conditions on firefighters' performance and satisfaction. Thus, the data were revisited to extract current implications aligned with emerging demands for humanized management and emotional support in public safety institutions.

3.1. Formulating the research

Fourteen hypotheses were formulated based on the literature, seeking to establish a relationship between perceived quality factors (Brady & Cronin Jr., 2001) and the performance of public emergency services (Janstrup, et al., 2017). These hypotheses are organised into three groups.

- H1 to H10: Evaluate the influence of five quality dimensions (tangible aspects, reliability, promptness, guarantee/security and empathy) on service performance,

according to the perception of external customers (H1-H5) and internal customers (H6-H10).

- H11 and H12: Investigate the relationship between these dimensions and the importance attributed to the service by the two audiences.
- H13 and H14: Evaluate whether perceived quality contributes to the satisfaction of external and internal customers.

The concept model hypothesis was proposed as investigative and presents the factors related to perceived quality highlighted in Emergency Public Services of Firefighters (Janstrup, et al., 2017). According to the literature, every service seeks excellence in it is performance (Dos Santos & Mainardes, 2018) and the characteristics of factors are captured by perceptions that influence the attributes of customers (Wu, 2013). The **Figure 2** illustrate all process of research hypothesis.

4. Results and Discussion

The results obtained partially confirm the hypotheses. Both internal and external customers recognized guarantee and security as the most relevant dimensions for performance, reinforcing H4 and H9 as validated hypotheses. The presence of a low discrepancy between the two groups suggests that perceptions of quality are aligned, which reinforces the hypotheses related to the influence of dimensions on performance (H1 to H10), although with different emphases on some attributes.

However, the importance attributed to services (H11 and H12) did not directly influence the assessment of quality, which indicates that symbolic or social recognition of the service provided does not alter the objective perception of performance - an important piece of information for public managers.

Finally, the data supports hypotheses H13 and H14 by indicating that perceived quality is associated with the general satisfaction of the publics analyzed, validating the relevance of the Servperf instrument in measuring the experience of both users and employees.

4.1. Descriptive Confirmatory analysis

The **Table 1** illustrate sample external customers detail. Among the respondents 67.05% were male and 32.95% female. The highest concentration was in Araraquara region with 39.77% respondents, 26.14% were in age group from 29 to 36 years and 26.14% were in age group from 37 to 45 years. The majoritarian public, 72.73%, made just one call for Emergency Central and 82.95% of respondents immediately solved yours problem.

According to analysis the sample illustrate good heterogeneity, dispersed public and that are inserted in a threshold age group economically important to society. The interviewed public contributed to application of study, since a sample dispersed and heterogeneous public was desired.

As for other interviews group, **Table 2** illustrated firefighters collaboratives sample data. The respondents were 96.72% male and 3.27% female. Regarding the years in firefighter's profession, the great representation was in from 01 to 05 years with 24.18% respondents. The level of training outside organization were 46.31% had high school and, in regions, the

emphasis was 4th FDS - São Carlos City with 29.92% interviewed public.

According to analysis the sample illustrate that the public has experience and technical knowhow to realized emergency services and the most occur were registered in services emergency 10 with car accident rescue and emergency medical rescue. Highlight that the interviewed public contributed to application of study, since also sample dispersed and heterogeneous public was desired.

4.2. Instrument normality and reliability

The quantitative assessment began with the Shapiro-Wilk normality test (Field, 2009) due hypothesis that data not represent a normally distributed population and greater variability. The test was applied (1%) significance, with valor-p ($p > 0.05$) and illustrate in **Table 3** (**). Results indicated that all data were significant, but rejected hypothesis that belong to a normal and variable distribution.

Thus, application of nonparametric statistics is suggested.

On this reliability was analyzed according to Cronbach's Alpha Test (Oh & Kim, 2017) and was represented in **Table 4**. Your variation was between ($\alpha = 0.54$) to ($\alpha = 0.86$) for both clients. Although index shows a positive result, low reliability values occurred. These values are related to diversity of factors in some dimensions and have been readjusted to improve the overall index.

4.3. Averages of variable measurements

As one of study objectives is categorize the instrument to assign a general average value of satisfaction measures were elaborated value means centered on variables and latent factors. The averages were created by summing values of variables in each latent factor divided by number of variables that made up the factors.

The averages were applied, similarly to instrument Alpha coefficient whose average value was ($\alpha = 0.814$) for external customer and ($\alpha = 0.714$) for internal customer. As result the values were satisfactory and reliable. The **Table 4** also illustrate the factor and coefficient average data.

4.4. Analysis relationships between constructs and variables of customers services

As already mentioned, the hypotheses (1 to 10) were created to identify and examine the relationships between variables x dimensions and validity yours existing according to broad view of organization current scenario. In this case, were applied Spearman Correlation Test (Hair et al. al., 2009). The test is a non-parametric technique and serves as an alternative to Pearson Test (Hair et al., 2009) and presents as result a hypotheses rejection or acceptance, highlight with (**) because not a quantitative measure applicable. The **Table 5** illustrate the analysis of results.

The ten hypotheses not were rejected and values ranged from (0.123) to (0.7134). The value indicates a positive and moderate intensity correlation. There was also not rescheduling of variables proving that there is sufficient statistical evidence to state that all are correlated with customer satisfaction.

When relating result with the averages in **Table 4**, observed that there are point to existence of least eight averages near upper limits for external customer scale and seven averages near the upper limits for internal customer scale, with values above 6.50. This result confirms the statement about the 10 customer satisfaction and about services quality delivery by 9th Fire Department. Stands out that the respondents pointed equally to guarantee & safety latent factor as those that best represents emergency public services performance of Firefighters.

4.5. Analysis comparison between dimensions and attributed importance of customers services

The Spearman Correlation Test (Field, 2009) was also applied to searching the analyses and compare importance attributed for services. This analysis is referring the hypotheses 11 and 12 of study. The intuit were demonstrates whether values obtained a significant result and/or reject hypothesis of finding a statistical result favorable with p-value ($p < 0.05$) less than significance level applied.

To affirm the correlation, values must be at ends of scale, otherwise it is not uncorrelated if the values are close to zero. The **Table 6** illustrate the case.

The result point that there one value not confirm the relations between services assessment and attributed importance for them illustrate with (*). However, for both customers the value are close to zero and tend to have a weak correlation. As analysis the results implicated on no approximation between the dimensions and the importance given to fire services for this assessment moment. The data confirm yet that services assessment phenomenon and of importance attributed were not correlated. Similar to occurred in **Table 5**, **Table 6** does not present the results by a formative assessment and for this circumstance was prepared the **Figure 3** to represent the respondents 'percentage averages about the importance they gave to the Firefighters' services. In Figure is perceptive that both customers present the dimension confiability as more significative in actions. The average was 24,43 for external customer (gray graph) and 26,24 for internal customer (blue graph).

As result, the data configure the reliability dimension as the most importance in emergency public services of firefighters', to both customers. Note that when assessing the services quality by performance perception, both customers argued that the assurance & security dimension was those determinant of their behavioral intentions (Min Chen et al., 2014). However, there are other determinant represent the services importance for customers.

Note the fact of both are different dimensions in search can be argued that your qualitative approach are very close due to the subjective interpretation of dimensions for Fire Department activities. From this point, it can be argued that customer could not distinguished directly the statements or the statements has not been well established and there is proximity in statements.

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According to the literature, when relate both the dimensions, is because exist a culture related 10 to characteristics these dimensions, well as a culture associated with Fire Department. One example is in the characteristics which guarantee the correct and safe delivery of emergency public services and, eventually, translate into confidence in actions (Pessemier & England, 2012). It is believed that the perceptions about the extent for members of organization engage in safe behavior are fundamental to speedy activity and incident-free action. Such information translates into Warranty & safety dimension and into reliability dimension, represented as a general factor in customer satisfaction and services quality.

4.6. Comparison and Correlative of variables between groups

The last step consists in comparison and correlated of variables between groups, as propose of verify if assessment both tend for customers satisfaction, besides this step also seeks to verify, if there is any difference regarding the perceived quality assessment, answering the hypotheses 13 and 14. There are considering that the applied instrument has equality of variance for both customers. For specific occasion were utilized the Student's t test (Hair et al., 2009) and argued the following prepositions - HA0 - The population means are equal ($\mu_A = \mu_B$) and HA1 - The means of populations are distinct ($\mu_A \neq \mu_B$).

By accepting H0 the populations are equal and there is no difference between satisfaction perceived by the groups. However, if rejecting H0 and accept H1, the populations are not equal and there is a difference between the satisfaction perceived by the groups. The **Table 7** illustrate the result with value average, significant level, description equality hypothesis, if reject (R) or not reject (NR). The data were applied with alpha to (5%).

As result, variables average in physical Appearance dimension ($t(330) = 8.150$; $p < 0.05$) and readiness ($t(330) = 4.988$; $p < 0.05$) not present significative value and rejected the equal hypothesis (HA0), soon the satisfaction perceived by external customer is not same as the satisfaction perceived by internal customer. On other hand, dimensions average of variables in reliability dimension ($t(330) = -1.351$; $p < 0.05$), guarantee & safety dimension ($t(330) = -0.090$, $p < 0.05$) and empathy dimension ($t(330) = -1.153$; $p < 0.05$) accepted the equality hypothesis (H0) with significant values and, therefore, the satisfaction perceived by external customer is same as perceived by internal customer.

The result of comparison analysis also was illustrated by satisfaction average, where value was concerted between ($\mu = 6.29$) to ($\mu = 6.70$), for external customer; ($\mu = 5.30$) to ($\mu = 6.71$) for internal customer.

5. Discussion

Although the focus of the study was on evaluating the quality of service, it was observed that the indicators most valued by both internal and external customers - trust and safety - reflect directly not only on the perception of technical effectiveness, but also on subjective aspects that affect the emotional well-being of firefighters. The constant demand for trust and the high level of responsibility reinforce the need for a working environment that also promotes psychological stability and emotional support. The

absence of significant discrepancies between the groups points to a shared recognition of the importance of emotional balance in providing an effective and safe service.

When comparing averages of satisfaction, there is a greater symbolic difference in perception of as services are delivered than in perception of as is service provision managed. In this circumstance it is possible claim that the internal customer presented less expressive value than external client. Besides the non-acceptance in equality hypothesis in physical appearance and readiness dimensions which proves the existence of a slight divergence between groups.

The reasons for obtaining this slight divergence were due to non-acceptance of equality 10 hypothesis in physical appearance and readiness dimensions, justified by fact that internal customer manifested as more judicious at assessment time. Believed that the manifestos may be associated with subjective actions of these professionals and the practical peculiarities. The results reflect in attention for improvement in both human bias and organizational bias (Kang, Hong & Lee, 2009) as argument still to there are discussed.

Due to human bias, the military collaborators first reason be more careful during assessment is because such attitude exemplified when people try to relate their image as they feel and the way that they would like to be observed. This behavior in environment may be termed as "ideal social self image attitude" (Kang, Hong & Lee, 2009).

Added for this sensation, the second reason is because there are factors of military activity itself as occupational stress and psychological problems that, if inserted in the work environment, affect collaborators end influence negative opinions in members. Believed that is precisely for this reason the negative aspects were scored and observed. Actually, studies were proving Firefighters' activities are not simple and collaborators are vulnerable to risks (Natividade, 2009). In many researches, there are factors associated for the development of occupational diseases such as mental stress (Abelsson, 2018; Corrigan et al., 2009), post-traumatic stress (Fraess-P., Wagner & Harris, 2017) and even Burnout syndromes (Söderlun, 2017).

In organizational bias, is observed that precariousness of state with the minimum conditions for the public agent is a factor that worries everyone and result in negative scores during an assessment, as already highlighted in this study and in studies public occupations (Murta & Tróccoli, 2007).

The mainly points highlight here are poor maintenance of equipment, vehicles and facilities, as well as, the standard of plastered organizations that generate demotivation among and fluently in environmental conditions of services. It is essential highlight that many practical peculiarities of firefighter's services occur because the process not was well management.

Although state conduct is embedded within New Public Management (Osborne, 2016) and that it nowadays it been positive and consistent, the management problems continue to occur in the organization, still because this process derive from of "format plaster of state", and does not allow quickly articulation to solve problems. Soon, the precariousness does increasingly need the proliferation of influences politics (Meisler & Vigoda-Gadot,

2014), fact facilitate the action of many interests and do not encourage support to profession exercise with mastery.

When observe politics interest in actions on firefighters' services, mainly if associated human problem aspects, as time-pressure charging, task characteristics in occurrences and the stressful environment does of activity (Natividade, 2009), the actions have been difficult to employers working. Note yet, one of the characteristics of firefighter's services are the safe environment and fast acting of professionals and, to this, the organization necessity resources and flexibility of the leadership to 10 achieved positive results in specific peculiarities. Nowadays, be noted that this politics influence occurs frequently in public organizations Brazilians and believed the negative aspect these circumstances have been insert by employers during the assessment process.

It is considered that under ideal conditions the understood that emergency public services of firefighters might provide better results for customers if occurred improvements are articulated firstly for internal customer. After, understood that give one ideal conditions for employers can provide better results in services (Dos Santos & Mainardes, 2018; Frost & Kumar, 2000) and that the understanding by the leadership to promote improvements arises from the perception that it is necessary to promote some actions in the public environment, either in the collaborative participation of employees regarding the individual relationship company (Murta & Tróccoli, 2007) or in the make

happen on promoting changes in public policies about apply of services (Carvalho et al., 2006). In general, despite mentioned problems regarding some discontent is perceptive that services assessment of firefighters occurred positive. The perceived of services by experience of public were satisfactory at moment in services delivery and others researches' highlighted peculiarities were similar when assessment yours studies (Cronin & Taylor, 1992; Jaiswal & Lemmink 2017).

In addition, the lack of influence of the importance attributed to the services on the evaluation of quality may indicate a tacit acceptance that firefighters are always willing to act, regardless of explicit appreciation on the part of users - which can generate mental overload, especially in high-risk environments with limited resources. This data should also be interpreted as a warning sign for institutional policies that promote psychosocial support for frontline professionals.

6. Considerations

The results obtained through the application of the Servperf instrument reveal a positive perception regarding the quality of services provided by firefighters. The dimensions of trust and safety were the most significant. These findings should be analyzed beyond just technical or managerial perspectives—that is, standardized procedures, fast, dynamic, and secure actions, along with the guarantee of life preservation and collective interest, are considered positive reflexes in firefighters' emergency public services. The results demonstrate not only an understanding of user satisfaction but also the importance of delivering high-quality service, reflected in two key contributions.

The perception of quality associated with trust may reflect a work environment laden with emotional pressures. Firefighters are required to maintain high performance standards even under

adverse conditions and, at times, without adequate psychological support. These situations reinforce the importance of considering mental health as one of the strategic pillars of operational service quality. The main instruments identified for assessing quality in public services align with the Discrepancy Theory, which examines the gap between expectations and perceptions of service delivery. However, in our findings, the absence of significant discrepancies between internal and external clients indicates consistency in service perception but may also conceal a normalization of stress and emotional overload as part of the professional routine. This highlights the urgent need to implement psychosocial care policies and emotional development programs within fire departments.

Ultimately, the service quality assessment yielded positive results, albeit with slight variations. These variations were linked to situational dynamics between employees and the organization. To enhance institutional performance, leadership should invest in targeted workplace improvements, enabling professionals to voice their concerns and optimize service delivery. Therefore, in addition to structural and administrative measures aimed at operational excellence, it is essential to incorporate humanized management practices and mental health support, such as Support circles, Psychotherapeutic counseling, Empathetic mentoring, and Active listening Spaces.

These initiatives should be treated as direct performance indicators, as they foster resilience, engagement, and psychological safety keyfactors in sustaining the quality and continuity of emergency public services.

Finally, it is recommended that future studies explore the relationship between quality assessment and psychosocial impacts on firefighters' performance, deepening the understanding of how subjective well-being correlates with perceived service effectiveness (Oh & Kim, 2017).

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FIGURES

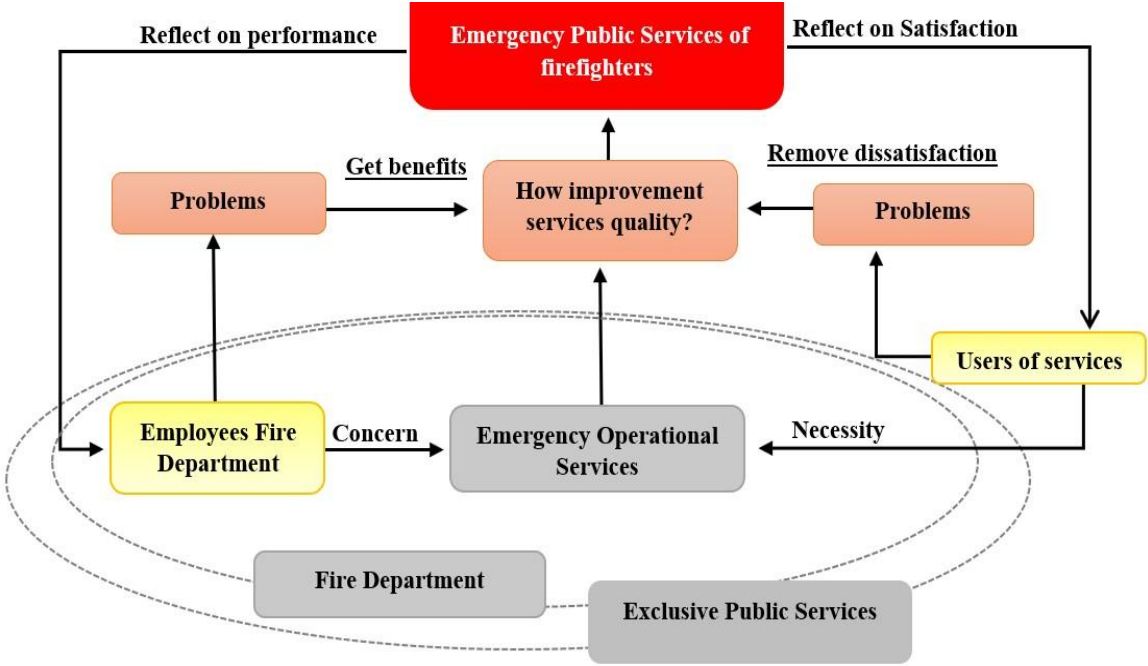


Figure 1 - Research problem map.

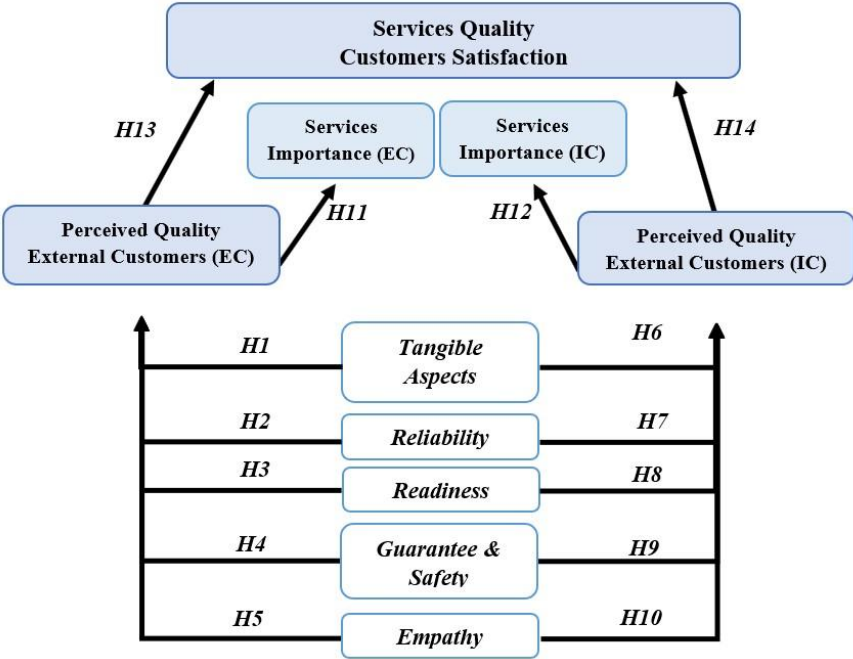


Figure 2 – Research hypothesis diagram.

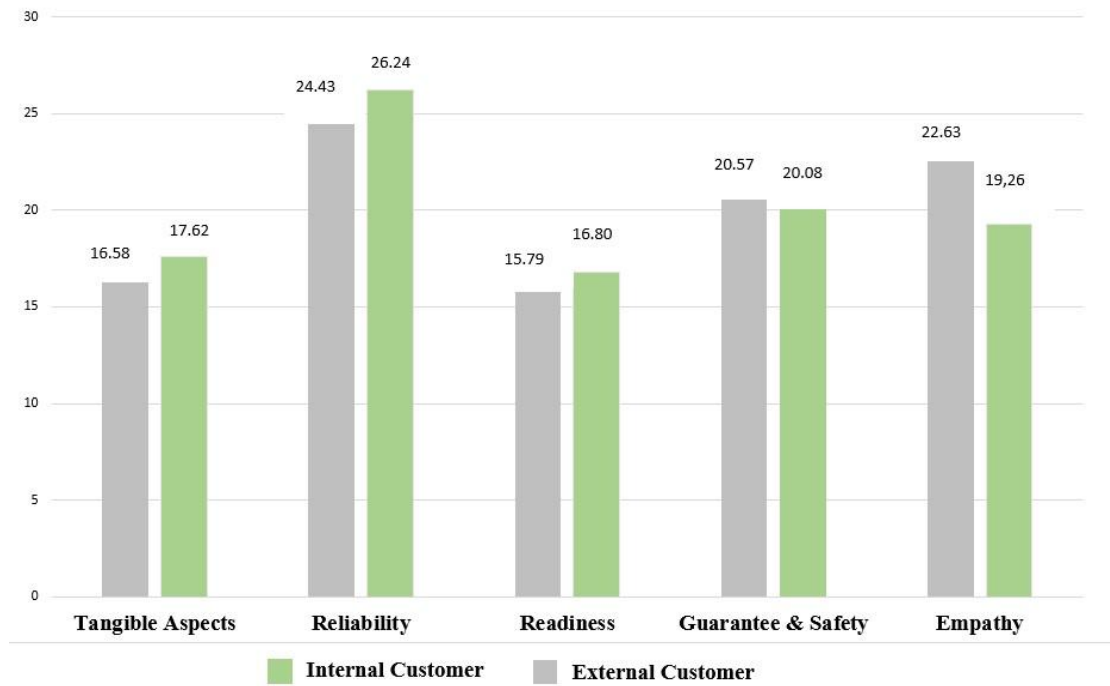


Figure 3 - Graph with analysis of customer importance characteristics

TABLES

Table 1 - External customer data

Variable	Characteristics	Frequency	Percentage	Acc. Percentage
Customers gender	Male	59	67.05	67.05
	Female	29	32.95	100.00
Customers Age	18 to 22 years	3	3.41	3.41
	23 to 28 years	12	13.64	17.05
	29 to 36 years	23	26.14	43.18
	37 to 45 years	23	26.14	69.32
	46 to 50 years	8	9.09	78.41
	Over 50 years	19	21.59	100.00
Request Number	One time	64	72.73	72.73
	Two times	7	7.95	80.68
	Three times	6	6.82	87.50
	Over Three times	11	12.50	100.00
Problem Resolves	No	5	5.68	5.68
	Partial	10	11.36	17.05
	Yes	73	82.95	100.00
External Customers Region	Ribeirão Preto/SP	14	15.91	15.91
	Franca/SP	16	18.18	34.09
	Araraquara/SP	35	39.77	73.86
	São Carlos/SP	23	26.14	100.00
Total		88	100.00	100.00

Table 2 - Internal customer data

Variable	Characteristics	Frequency	Percentage	Cum. Percentage
Customers gender	Male	236	0.96	96.72
	Female	8	0.32	100
Internal Customers Region	1 st SFD Rib. Preto/SP	63	25.82	25.82
	2 nd SFD Franca/SP	54	22.13	47.95
	3 rd SFD Araraquara/SP	54	22.13	70.08
	4 th SFD São Carlos/SP	73	29.92	100.00
profession Age	01 to 05 years	59	24.18	24.18
	05 to 10 years	46	18.85	43.03
	10 to 15 years	37	15.16	58.20
	15 to 20 years	43	17.62	75.82
	20 to 25 years	44	18.03	93.85
	Over 25 years	15	6.15	100.00
Graduate Level	Fundamental Education	3	1.23	1.23
	Middle Education	113	46.31	47.54
	Postgraduate	7	2.87	50.41
	University education	77	31.56	81.97
	Incomplete University education	40	16.39	98.36
	Technical course	4	0.41	98.77
Operational Courses	01 course	53	21.72	21.72
	02 courses	52	21.31	43.03
	03 courses	53	21.72	64.75
	04 courses	66	27.05	91.80
	Not courses	20	8.20	100.00
Occur last	Car accident rescue	52	21.31	21.31
	Tree Cut Salvage	3	1.23	22.54
	Fire miscellaneous	21	8.61	31.15
	Emergency Medical Rescue	131	53.69	84.84
	Salvage	35	14.34	99.18
	Civil Defense Operational Service	2	0.82	100.00
	Total	244	100.00	100.00

Table 3 - *Shapiro-Wilk* Normally Test

Dimension	Variable number	Internal Customer		External Customer	
		t	Valor-p	t	Valor-p
Tangible Aspects	3	0.906	2.90E-08**	0.666	7.31E-13**
Reliability	2	0.552	2.20E-16**	0.609	5.89E-14**
Readiness	2	0.782	2.20E-16**	0.548	5.07E-15**
Guarantee & Safety	3	0.583	2.20E-16**	0.545	4.48E-15**
Empathy	3	0.606	2.20E-16**	0.750	6.21E-11**
Customer Satisfaction	1	0.900	1.21E-08**	0.695	3.09E-12**

Table 4 - Cronbach's Alpha by external and internal Customer

Dimension	Variable	External Customer						Internal Customer					
		Average	Error Est.	St Des	Mean	St Des	Alpha	Average	Error Est.	St Des	Mean	St Des	Alpha
Tangible Aspects	APFV1	6.32	0.10	0.98				4.41	0.11	1.72			
	APFV2	6.70	0.08	0.71	6.54	0.85	0.86	6.07	0.09	1.39	5.30	1.73	0.71
	APFV3	6.60	0.09	0.85				5.43	0.11	1.65			
Reliability	CONV1	6.53	0.10	0.96	6.51	0.98	0.83	6.69	0.04	0.70	6.66	0.75	0.79
	CONV2	6.49	0.11	0.99				6.64	0.05	0.81			
Readiness	PROV1	6.49	0.13	1.20	6.57	0.96	0.80	5.28	0.14	2.26	5.77	1.95	0.54
	PROV2	6.66	0.08	0.71				6.25	0.09	1.43			
Guarantee& Safety	GESV1	6.72	0.07	0.68				6.67	0.05	0.74			
	GESV2	6.65	0.08	0.73	6.70	0.69	0.92	6.71	0.04	0.62	6.71	0.63	0.86
	GESV3	6.74	0.07	0.65				6.75	0.03	0.53			
Empathy	EMPV1	5.93	0.16	1.54				5.95	0.12	1.84			0.67
	EMPV2	6.25	0.14	1.35	6.29	1.20	0.66	6.67	0.07	1.13	6.45	1.41	
	EMPV3	6.68	0.08	0.72				6.72	0.07	1.02			
Global Satisfaction	***	6.52	0.10	0.99	6.52	0.99	0.93	6.17	0.08	1.22	6.17	1.50	0.74

Table 5 - Spearman correlation for external and internal Customer

Dimensions	Tangible Aspects	Reliability	Readiness	Guarantee & Safety	Empathy	Customer Satisfaction
External Customer						
Tangible Aspects	1.000	0.7000**	0.5666**	0.5805**	0.6247**	0.8093**
Reliability	0.7000**	1.000	0.7706**	0.7806**	0.6188**	0.7874**
Readiness	0.5666**	0.7706**	1.000	0.8835**	0.6315**	0.7465**
Guarantee & Safety	0.5805**	0.7806**	0.8835**	1.000	0.6434**	0.7569**
Empathy	0.6247**	0.6188**	0.6315**	0.6434**	1.000	0.8846**
Customer Satisfaction	0.8093**	0.7874**	0.7465**	0.7569**	0.8846**	1.000
Internal Customer						
Tangible Aspects	1.000	0.2739**	0.1322*	0.2206**	0.1234**	0.6448**
Reliability	0.2739**	1.000	0.3927**	0.5885**	0.3211**	0.5554**
Readiness	0.1322*	0.3927**	1.000	0.3725**	0.4010**	0.7134**
Guarantee & Safety	0.2206**	0.5885**	0.3725**	1.000	0.3833**	0.5363**
Empathy	0.1234**	0.3211**	0.401**	0.3833**	1.000	0.6032**
Customer Satisfaction	0.6448**	0.5554**	0.7134**	0.5363**	0.6032**	1.000

Table 6 - Spearman Correlation Test for importance

Dimensions	Tangible Aspects	Reliability	Readiness	Guarantee & Safety	Empathy	Customer Satisfaction
External Customer						
Tangible Aspects	0.096	-0.057	-0.160	-0.004	0.172	0.096
Reliability	-0.059	0.053	0.050	-0.013	0.025	-0.059
Readiness	-0.033	0.046	0.035	0.095	-0.089	-0.033
Guarantee & Safety	-0.011	0.076	-0.086	0.050	0.027	-0.011
Empathy	-0.002	0.013	-0.022	0.135	-0.043	-0.002
Customer Satisfaction	0.044	-0.044	-0.093	0.131	0.044	0.044
Internal Customer						
Tangible Aspects	0.053	-0.028	-0.101	-0.035	0.092	0.053
Reliability	-0.005	-0.058	-0.023	0.067	0.013	-0.005
Readiness	-0.085	-0.016	-0.025	0.149*	-0.018	-0.085
Guarantee & Safety	-0.023	-0.038	-0.006	0.011	0.037	-0.023
Empathy	-0.086	-0.017	-0.006	0.072	0.035	-0.086
Customer Satisfaction	-0.038	-0.054	-0.052	0.068	0.064	-0.038

Table 7 - T de Student test

Dimension	External Customer		Internal Customer		Test t		Significance
	Mean	St Dev	Mean	St Dev	t	Gl	Alpha - 5%
Physical Aspects	6.318	0.977	4.406	1.722	12.374	330	R
	6.705	0.714	6.066	1.392	4.385	330	R
	6.602	0.851	5.426	1.653	8.045	330	R
Mean	6.542	0.848	5.299	1.589	8.153	***	R
Reliability	6.534	0.958	6.689	0.698	-1.835	330	NR
	6.489	0.994	6.635	0.808	-0.868	330	NR
	6.511	0.976	6.662	0.753	-1.351	***	NR
Readiness	6.489	1.203	5.283	2.257	6.857	330	R
	6.659	0.709	6.250	1.428	3.611	330	R
	6.574	0.956	5.766	1.842	4.988	***	R
Guarantee & Safety	6.716	0.677	6.672	0.736	0.000	330	NR
	6.648	0.728	6.713	0.622	-0.998	330	NR
	6.739	0.652	6.746	0.530	0.000	330	NR
Mean	6.701	0.686	6.710	0.629	-0.090	***	NR
Empathy	5.932	1.537	5.955	1.838	0.606	330	NR
	6.250	1.350	6.672	1.133	-3.760	330	R
	6.682	0.720	6.717	1.021	0.000	330	NR
Mean	6.288	1.202	6.448	1.331	-1.153	***	NR
Customer Satisfaction	6.523	0.934	6.177	1.229	2.388	***	***