Assessment of the quality of the food assistance service with the SERVPERF model

Evaluación de la calidad del servicio asistencial alimentario con el modelo SERVPERF

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Abstract

Assessing service quality based on user satisfaction is an unavoidable task. That implies not only knowing the perception of users, but also generating new knowledge. That is why the main objective of this research was to evaluate the quality of the food assistance service through the SERVPERF model of Cronin and Taylor (1992) adapted to the public social assistance sector. As well as identifying the dimensions most valued by the user, corroborating the validity of the model in the sector studied. This research was developed under a quantitative, cross-sectional, descriptive and non-experimental approach (Hernández, *et al*., 2014; and Bernal, 2016). The sampling was non-probabilistic for convenience with 154 participants, whose ratio was 7 questionnaires in relation to the 22 items of the measurement instrument, fulfilling the criteria of Hair *et al*. (1999). With this investigation, the SERVPERF instrument was validated for the public sector, with acceptable levels of Cronbach's Alpha greater than 0.700 according to Nunnally (1978) and through descriptive statistics, the normality of the data was identified, in addition to verifying the correlation between elements and by each variable studied.

User satisfaction, Descriptive statistics, Public sector

Resumen

Evaluar la calidad del servicio a partir de la satisfacción del usuario, es una tarea ineludible. Que implica no sólo conocer la percepción de los usuarios, sino, generar nuevo conocimiento. Es por ello, que el objetivo principal de esta investigación consistió en evaluar la calidad del servicio asistencial alimentario mediante el modelo SERVPERF de Cronin y Taylor (1992) adaptado al sector público de asistencia social. Así como identificar las dimensiones más valoradas por el usuario, corroborando la validez del modelo en el sector estudiado. Esta investigación se desarrolló bajo un enfoque cuantitativo, de corte transversal, de tipo descriptivo y no experimental (Hernández, *et al*., 2014; y Bernal, 2016). El muestreo fue no probabilístico por conveniencia con 154 participantes, cuya ratio fue de 7 cuestionarios en relación a los 22 ítems del instrumento de medición, cumpliendo con el criterio de Hair *et al*. (1999). Con esta investigación se validó el instrumento SERVPERF para el sector público, con niveles aceptables del Alfa de Cronbach superiores a 0.700 según Nunnally (1978) y mediante la estadística descriptiva se identificó la normalidad de los datos, además de comprobar la correlación entre elementos y por cada variable estudiada.

Satisfacción del usuario, Estadística descriptiva, Sector público

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1. Introduction

Since the 1990s, it has been identified that the quality of public sector services is of the most importance for the fulfillment of government objectives and regulations regarding the offering of services effectively demanded by citizens. However, inadequate or incorrect treatment, deficient information, lack of equipment and physical spaces for the provision of services prevail, which results in user dissatisfaction, who is increasingly informed and demands better quality. in the service (Bernal *et al.*, 2015).

Additionally, when conceptualizing public administration as government action to satisfy society, it is essential that services are offered with quality and are consistent with the interests and expectations of citizens (Guadalupe and Iglesias, 2015). For this reason, it is essential to capture, receive, consolidate and respond to needs, by establishing effective actions to meet the expectations of citizens and control the quality of the service, correcting its performance (Fontalvo *et al.*, 2020).

Consequently, the evaluation of the quality of service is necessary, which implies knowing the perception of the user based on the theory of confirmation of expectations-satisfaction (Campoverde, *et al.* 2020); being the perception of users a critical component to measure the quality of the service (Akdere, *et al.* 2018) and for improvement, where the knowledge, skills and labor competencies of public servants must be considered (López, 2019). Undoubtedly, the improvement of service performance improves its quality (Mujinga, 2019).

Consequently, the prevalence of user dissatisfaction with public social assistance services remains latent. Although, the vulnerable groups that are assisted to influence their well-being show both attitudes of gratitude and discontent, which translates into the level of satisfaction or dissatisfaction. It is preponderant to satisfy the needs and expectations of users that allow the improvement of the various services to which they are creditors for the simple fact of being classified as subjects of social assistance.

In this same order of ideas, to achieve the aforementioned, it is essential to know the perception of the quality of the food assistance service according to the satisfaction of the users.

Therefore, this research was carried out using a quantitative, cross-sectional, descriptive and non-experimental approach (Hernández, *et al.*, 2014; and Bernal, 2016). While the sampling was non-probabilistic of 154 users, for the calculation of the sample a ratio of 7 questionnaires was considered in relation to the 22 items of the measurement instrument (Hair *et al.*, 1999), which is based on the model SERVPERF by Cronin and Taylor (1992) with a Likert scale from 1 to 5 points, where 1 corresponds to totally dissatisfied and 5 corresponds to totally satisfied.

The quantitative technique used has an added value with respect to other techniques such as the qualitative one, since it allows to adequately address the problem and explain the behavior of the surveyed population in relation to the dimensions of the quality of the service analyzed; as well as testing the hypothesis with theoretical and methodological support and generating new knowledge.

In this sense, the problem that is addressed consists of evaluating the quality of the service with the SERVPERF model in its five dimensions: tangibility, reliability, response capacity, security and empathy; in order to validate the applicability of this model to the public sector to find out how satisfied users are with the food assistance service. Therefore, the research question is: which dimensions of the SERVPERF model (tangibility, reliability, responsiveness, assurance and empathy) are applicable to the evaluation of the quality of the food assistance service? To do this, the central hypothesis to be tested is shown below:

– H_0: The dimensions for the evaluation of the quality of the service of the SERVPERF model (tangibility, reliability, responsiveness, assurance and empathy) are not applicable to the food assistance service.

– Ha: The dimensions for the evaluation of the quality of the service of the SERVPERF model (tangibility, reliability, responsiveness, assurance and empathy) are applicable to the food assistance service.

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The article is made up of nine sections. In the first, an introduction to the research topic is shown, its importance, the technique to be used, the added value, the description of the problem, the hypothesis to be verified and generalities of this investigation.

In the second section, the review of the theoretical framework is presented, as support for the approach to the problem and the incidence in its explanation, which includes the theory of user satisfaction and service quality.

The third section details the method used, the type and design of the research, the description of the variables, the measurement instrument, the participants, the procedure, and the data analysis. In the fourth section, the results and discussion are included, with descriptive statistics, as well as the discussion in light of the supporting theory. In the fifth section, the annexes are included, where the instrument used is incorporated. In the sixth section, the thanks to the participating informants and the institution from which they come are added. The seventh section shows the source of funding for the research work.

In the eighth section, the conclusions and recommendations are shown, where the main findings, limitations and future work are explained. In the ninth section, the references of the authors who contribute directly to the present study are listed according to the review of the state of the art.

2. Theoretical framework

From the 80s the concept of user satisfaction arises and at the same time quality and evaluation are added. These three inseparable elements start from the evaluation to later implement quality and thereby achieve user satisfaction (Rey, 2000). To find out user satisfaction, it is common, according to Maceiras (2002), to use surveys as a method for this purpose, emphasizing that in Sweden, England and the United States of America they are widely used.

To determine user satisfaction, there are several theories that incorporate expectations, and they are called value-expectation.

In this regard, Velandia *et al.* (2007), allude to the relationship that exists between beliefs and attitudes, that is, it is believed that an object has some attributes, which are evaluated and determine the degree of user satisfaction, involving five elements such as: the belief that what will be received has certain attributes, the value that is assigned to each one, the perception that these attributes are given, comparisons of own experiences, and individual beliefs when judging what is received.

Additionally, Velandia *et al.* (2007) present three theories as variants, the compliance theory, the discrepancy theory and the equity theory. The first mentions the difference between what is desired, expected and important versus what is obtained. While the second considers the difference comparing against what should be; and the third refers to the balance between what users receive and what is compared to what others received. The Net Promoter Score, NPS theory by Reichheld (1993, 2003) is also integrated, which determines that user satisfaction is conceptualized by recommendation or loyalty, on an 11-point scale. Users who reflect scores of 9 to 10 are considered promoters; those from 7 to 8 are passive users, and those from 0 to 6 are detractors

Now, returning to user satisfaction, from the theoretical perspective of service quality, Woodall (2001) adds that Gronroos in his theory conceptualizes that service quality is mainly made up of three dimensions: technical quality, functional quality and corporate image (Ghotbabadi *et al.*, 2015). The latter is determined by emerging marketing techniques, and from the expectations and perceptions regarding the first two, he also states that satisfactory performance is a prerequisite for satisfied customers, being explicit regarding the contrast of hard and soft aspects of the quality of service. On the other hand, Parasuraman *et al.* (1985), affirm that from the eighties the investigation about the quality in the service had not been addressed much, therefore, through an empirical study in four companies, they make the proposal of a conceptual model of quality in the service, which agrees with the recommendations and processes of the marketing theory of different schools, includes the expectations and perceptions of the users, determining the quality with the differences between them.

They also emphasize that quality is defined and measured with the concept of zero defects and doing things right the first time, adding compliance with requirements. However, they highlight that measuring the quality of the service is more difficult, since it is the result of the expectations and perceptions of the user, against the performance of the service received, so the user evaluates both the service received and the process.

On the other hand, Haywood-Farmer (1988), asserts that the ignorance of the problems in the quality of the service on the part of the researchers, allows him to propose a conceptual model of quality in the service applicable to any sector, regardless of the type of services. that they offer He assures that quality must be understood as the fulfillment of the preferences and expectations of the client, for which he asserts that a quality service can be conceptualized in this way as long as the aforementioned is achieved.

Therefore, it stands out that the service has a special nature, since it is intangible, heterogeneous, the client is involved in its production, it is produced by the workers and it is easy as marketing tools. In the three-dimensional model proposed by Haywood-Farmer (1988), it incorporates the three "P's" of a quality service: 1) physical facilities, processes and procedures; 2) conduct and coexistence of staff; and 3) professional judgment. In this regard, it states that an adequate mix of these three components determined by the intensity of the staff's work, the personalization of the service, and the contact and interaction between the client and the service process, will promote a satisfactory quality service.

During that same year, Parasuraman *et al*. (1988), propose a 22-item instrument (called SERVQUAL, Service Quality) to assess customer perceptions of service quality in service and retail organizations. They also carry out a discussion of the concept and operationalization of the service quality construct, and describe the procedures used for its elaboration and refinement of the scale. Where they affirm that the quality of the service is the result of the comparison between the expectations and the perceptions of the performance of the service.

Highlighting that Parasuraman *et al*., (1988), in the development of the scale, evaluate the ten dimensions that had already been presented in 1985; however, they reduce them by evaluating based on parsimony, to subsequently demonstrate the reliability of the instrument, the factorial structure and validity from the analysis of four retail banking, credit card, telephone and product repair and maintenance companies. With these samples they demonstrated the reliability and prediction of the general quality of the service. Adding as a conclusion the potential application of this scale to various services, with the possibility of it being adapted.

In this regard, Ghotbabadi *et al*. (2015), states that the SERVQUAL model of Parasuraman, *et al*. (1985, 1988), identifies five dimensions: tangible aspects, responsiveness, reliability, security and empathy, in addition to including the gaps that exist between the expectation and the perception of the service received.

For their part, Cronnin and Taylor (1992), in their research on the conceptualization and measurement of service quality, and the relationship with customer satisfaction and purchase intentions, first carried out an analysis of the dimensions of the SERVQUAL model. (Service Quality), then they compared the measurement alternatives and finally analyzed the relationship between the three variables mentioned.

This was demonstrated from the application of 660 questionnaires to clients of four companies, determining that SERVQUAL was adapted to two and SERVPERF to four. Based on the results obtained, they conclude that service quality is strongly linked to service performance, not to the differences between expectations and the perception of the service received, since they find that the theory of Parasuraman *et al*. (1988) as weak and transitory.

For this reason, based on the SERVQUAL Model of the aforementioned authors, they propose the SERVPERF Model, where they preserve the five dimensions of the first, and leave only the 22 items, leaving expectations aside. They also mention that quality service precedes customer satisfaction and the latter has a great influence on purchase intention.

By affirming the functionality of SERVPERF over SERVQUAL by Cronin and Taylor (1994), these authors respond to the concerns raised by Parasuraman *et al.* (1988) authors of SERVQUAL about the relative effectiveness of measures of service quality, based on performance and perceptions minus expectations. They show that the main concerns expressed are not supported by a critical review of their discussion, nor by the emerging literature.

Likewise, Cronin and Taylor (1994), posit as the most revealing evidence to date, from one of the original co-authors of SERVQUAL in other found results, in which they seem to support the conclusions of Cronin and Taylor (1992) over those of Parasuraman *et al.* (1985,1988), where they conclude that the results they obtained are incompatible with expectations and service gaps, so that service quality is influenced by performance perceptions. However, Cronin and Taylor (1994) state that the SERVQUAL and SERVPERF models are statistically reliable, and that they add to the quality of the service, user satisfaction and the value of the service.

For their part, Ghotbabadi *et al.* (2015), state that the SERVPERF model of Cronin and Taylor, maintains that the quality of the service is the attitude of the consumers and the performance of the service (perceived service), being the only measure of this, ensuring that they use the SERVQUAL scale, however, only assess perceptions.

In this regard, Zeithaml *et al.* (1996), propose a conceptual model of the impact of service quality on customer behavior, which they verify by means of an empirical test that reveals said influence. For what they assure, that the delivery of quality service is considered an essential strategy for the success and survival of organizations in a competitive environment.

With this study, they demonstrate the link between the profits of the organization with the quality of the service. In the model they reflect the reference that customers can give of the organization. In the empirical test, they sent 12,470 questionnaires to four companies, they used the SERVQUAL with thirteen items, instead of five dimensions.

They also propose that measuring service perception is appropriate when the main objective is to measure service quality and explain variance in some different construct, while measuring the difference between expectations and perceptions is to accurately diagnose service failures. The previous thing allows to see a reconciliation between the SERVQUAL and the SERVPERF.

Furthermore, Adil *et al.* (2013), explain that, in India, the service sector has assumed greater economic importance since the last decade, facing critical challenges to compete internationally, while satisfying customers by offering quality services for the consumer. success. In this regard, they analyze the two models SERVQUAL and SERVPERF since they are the most widely used scales, as a result of the analysis of the two models, the authors reveal that SERVPERF is the most efficient and that it also favors a lower number of items.

In this same sense, Ferreira *et al.* (2017), analyze the service quality models, discarding the SERVQUAL model and develop their own questionnaire model with eight questions, supporting it based on a theoretical review of topics such as service characteristics, logistics services, customer satisfaction and quality. of services, through exploratory techniques, mainly self-ethnography and content analysis of documents. They also only evaluate the perceptions of the service received, without considering the expectations. In this regard, they consider that this questionnaire is more effective than SERVQUAL, since the latter is complex and very long. However, they suggest applying the evaluation to other types of users with this instrument to validate its functionality.

In the public sector, as mentioned by Torres and González (2003), implementing quality in public services is a serious problem due to the centralization of authority and the bureaucracy itself. However, even when it is difficult they applied the model SERVQUAL for the evaluation of a service based on the perception of users in the municipality of Zapopan, Jalisco. This gave them results for decision-making in improving it, the dimensions they evaluated were five: tangible elements, reliability, responsiveness, security and empathy.

On the other hand, Casalino-Carpio (2008), assures that the SERVQUAL questionnaire, having a high level of reliability and proven validity, is capable of being applied for the evaluation of user satisfaction, based on the differences found between the expectations and the perceptions about it, in this particular case, when carrying out the study in Lima in the outpatient medicine service of a hospital, it found levels of dissatisfaction between 40 and 50 percent.

However, Viñas (2005), regarding the evaluation of the quality of public services by the user, which defines their satisfaction. He performs a critical analysis, in which he ensures that the services offered at the government level do not always have to satisfy the user, since it depends directly on the budget and political decisions. Likewise, he assures that the concept of satisfaction is truly subjective, since citizens have different needs. However, it suggests that the quality of public services may be related to concepts such as: coverage, fast and immediate attention, avoiding waiting lists, immediate delivery and use of the required service, personal attention, and trust, to name a few.

Likewise, Jiménez et al. (2013) assert the existence of high percentages of dissatisfaction in services, they refer to health in Mexico, prevailing factors that favor this problem such as the number of procedures, lack of attention, respect, punctuality and human quality when providing the service, with 15% dissatisfaction. In this same order of ideas, Navarrete-Navarro et al. (2013) assure that more quality research is required that contributes to a greater complexity in its measurement. Therefore, they affirm that in the last 30 years there has not been vast research in this area, neither in the United States nor in Mexico still more is missing, becoming an international problem.

On the other hand, Nigenda-López et al. (2013), address the problem as the lack of promoting changes in attitude to instill confidence in the population in the services, proposing as a solution the figure of citizen endorsement as in charge of promoting the evaluation of user satisfaction with respect to the services that receive and transmit demands for improvement.

However, Reyes-Morales et al. (2013), express that even though the quality of services has been measured for more than two decades, the focus has been on the technical or objective dimension, leaving aside the subjective dimension, for which they consider it necessary to improve care and response to the expectations of the users, since, in the study carried out by them, it persists that 85% have a good perception of the services. On the other hand, Parasuraman et al., (1985); Duque and Canas (2014) emphasize that the good perception or satisfaction of the user in the services can lead to customer loyalty or negative references to the company, the foregoing allows us to conclude that user dissatisfaction is really a real problem. Forellat (2014) assures that at present it is about generating quality acts and that they are perceived by users, considering service quality as an unavoidable challenge. For their part, Ibarra-Morales et al. (2014), consider it necessary to measure the quality of the service to identify the level of user satisfaction, given that knowing the perceptions can generate services for their benefit, in the study carried out by them, it was obtained that 72.96 % are satisfied with the service they receive, in this case it is a health service.

Additionally, Yousapronpaiboon (2014), carried out an investigation with the purpose of measuring the quality of service in higher education in Thailand, through the five dimensions of SERVQUAL (reliability, security, tangible, empathy and responsiveness), with the participation of 350 students from a private university, who observed a gap between the perceptions and expectations of the students: Reliability: -2.25, Responsiveness: -2.72, Guarantee: -2.48, Empathy: -2.48, tangible: -2.88. Thus, the gap analysis between service perceptions and expectations showed that all perception scores were lower than their expectation scores.

Also, Mthethwa and Chabikuli (2016), using the SERVQUAL model, which is commonly used in medical centers to assess user satisfaction with the service; identified the factors associated with job satisfaction, using a multiple variable logistic regression model. Of the groups surveyed, it was obtained that two out of three patients are totally satisfied, the differences between the quality dimensions are not statistically significant.

In another context, user satisfaction, according to Pat-Pech and Soto-Morales (2017) results from good individualized and friendly treatment that allows users to feel unique during the process of providing the service to satisfy their needs and achieve your well-being. In this same sense, Castelo *et al*. (2016), recognize the need to identify the degree of satisfaction that users have with the services they receive, since users have full confidence that their need will be fully and effectively met. On the other hand, Castillo *et al*. (2016), in their research work, detect the need to carry out an evaluation of user satisfaction with a view to achieving excellence in the services provided, also concluding on behalf of Mejías *et al*. (2017) that the measurement of user satisfaction allows the development of a strategic plan for the improvement of services.

However, by concentrating on the performance of the service, Luna & Torres (2022), confirm the importance of doing applied research in public management in terms of service quality with the use of instruments such as SERVPERF, of course with exhaustive rigor methodological; in addition, it generates a competitive advantage, according to Sohail & Hasan (2021). That is why the SERVPERF model measures the level of quality of a service through the evaluations of the users in relation to the benefit they receive for their improvement (Cifuentes, *et al*., 2022).

The aforementioned, supports the existence of a manifest problem in the dissatisfaction of the user with respect to the quality of the services; therefore, it is a current problem, susceptible to being investigated.

Although the SERVQUAL model arose first, for this research the SERVPERF model is used because it is more parsimonious than the first and also to test its validity in a specific context, with the five dimensions: tangibility, reliability, responsiveness, assurance and empathy.

3. Method

3.1 Type and research design

This research was carried out under a quantitative, descriptive, non-experimental and cross-sectional approach (Hernández *et al*., 2014; and Bernal, 2016).

3.2 Variables

3.2.1 Tangibility

This variable contemplates the physical aspects where the service is provided. It includes the physical facilities, material and equipment, as well as the appearance of the personnel that provides the service.

3.2.2 Reliability

It refers to the ability to perform the promised service reliably and accurately. It includes the promise of on-time delivery, concern for problem solving, good service the first time and no errors.

3.2.3 Responsiveness

It consists of the willingness of the staff to help customers and provide them with the service. It contemplates the accuracy in the provision of the service, time and speed, help and timely response.

3.2.4 Assurance

Prioritize the knowledge that the staff possesses when providing the service, as well as courtesy and the ability to inspire confidence and security.

3.2.5 Empathy

The empathy variable refers to the personalized and individualized attention that the staff gives to the users of the service, as well as the opening hours.

3.3 Measuring instrument

For this research, the SERVPERF scale of Cronin and Taylor (1992) with 22 items and the response option on a 5-point Likert scale was adopted, with 1 being the lowest value and 5 the highest rating. To carry out the content validity of the instrument, the judging technique was adopted (Hernández, *et al*., 2014), with which the translation from English to Spanish was validated, as well as the clarity and relevance of each item, as well as the adaptation to the sector in which the research is carried out.

In addition, the Cronbach's Alpha Index was calculated, with which the reliability of the scale was corroborated, that is, that the dimensions of service performance are effectively being measured, for which the results obtained are valid and reliable.

3.4 Participants

154 users of the food assistance service participated, complying with the selection criteria of the sample of Hair, *et al.* (1999), who propose that for each item at least 5 questionnaires will have to be applied. For this research, we worked with a ratio of 7 questionnaires for each of the 22 items. The characteristics of the sample are detailed below (see table 1).

Sociodemographic variables	Sample profile
Age	30-39 years = 6%
	40-49 years = 17%
	50-59 years = 15%
	60-69 years = 27%
	70-79 years = 27%
	80-89 years = 6%
	90-69 years = 2%
Sex	Male = 29%;
	Female = 71 %
Scholarship	Primary = 39%
	High school = 19%
	Preparatory = 1%
	No studies = 41%

Table 1 Characteristics of the sample
Source: Own Elaboration (2022)

3.5 Procedure

The method used for data collection was through the use of Qualtrics software, where the survey was integrated with 22 items on a 5-point Likert scale. The link to answer the questionnaire was installed on a tablet, which was provided to the users of the food assistance service so that they could evaluate the quality of the service received.

3.6 Data analysis

Statistical tests of reliability and validity of the instrument were carried out with the calculation of Cronbach's Alpha, as well as descriptive statistics, normality tests, correlations between elements and Pearson correlations between the dimensions of the SERVPERF model.

The data is processed with the statistical software SPSS (Statistical Package for the Social Sciences) version 25.

4. Results and discussion

Once the sample data has been taken, grouped in a database and analyzed, the information of interest for the study is obtained, so it is proceeded to present it, this will help us to visualize and interpret the variation of the results data.

4.1 Scale reliability test

The SERVPERF scale used presents acceptable levels of reliability according to the values obtained with the Cronbach's Alpha Index, verifying the reliability and ensuring the consistency of the instrument, with values greater than .700 as indicated by Nunnally (1978) and Hair, *et al.* (1999). (See table 2).

Variables	Cronbach's Alpha > .700 (Nunnally, 1978)
1-4 Tangibility (TAN)	0.712
5-9 Reliability (REL)	0.897
10-13 Responsiveness (RES)	0.765
14-17 Assurance (ASS)	0.968
18-22 Empathy (EMP)	0.889

Table 2 Calculation of Cronbach's Alpha Index
Source: Own Elaboration (2022)

4.2 Measures of central tendency

The results with the highest and lowest mean values of the Tangibility variable are 4.71 and 3.67 respectively; the standard deviation was 1.382 to 0.484. For the Reliability variable, the highest and lowest mean values are 4.66 and 4.31, respectively; the standard deviation was from 1.031 to 0.474. In the case of the Responsiveness variable, the highest and lowest mean values are 4.67 and 3.90, respectively; the standard deviation was 1.200 to 0.472. In the Assurance variable, the highest and lowest mean values are 4.73 and 4.69, respectively; the standard deviation was 0.462 to 0.447. Lastly, for the Empathy variable, the highest and lowest mean values are 4.74 and 4.53, respectively; the standard deviation was from 0.849 to 0.440 (see table 3).

	Indicators	Mean	Standard deviation	Minimum	Maximum
TAN1	Modern equipment	4.71	0.484	3	5
TAN2	Adequate facilities	4.71	0.470	3	5
TAN3	Staff appearance	4.69	0.476	3	5
TAN4	Brochures and suitable material	3.67	1.382	1	5
REL1	Promise kept	4.31	1.031	1	5
REL2	Interest in solving	4.66	0.516	3	5
REL3	Good from the first	4.64	0.509	3	5
REL4	Promised time	4.41	0.853	1	5
REL5	Without errors	4.66	0.474	4	5
RES1	Communicated time	4.55	0.637	2	5
RES2	Fast service	3.90	1.200	1	5
RES3	Provision of help	4.67	0.472	4	5
RES4	Time to answer	4.67	0.472	4	5
ASS1	Reliable behavior	4.70	0.459	4	5
ASS2	Safety	4.69	0.462	4	5
ASS3	Courtesy	4.73	0.447	4	5
ASS4	Knowledge to answer	4.71	0.453	4	5
EMP1	Personalized attention	4.71	0.453	4	5
EMP2	Convenient hours	4.53	0.849	1	5
EMP3	Attentive employees	4.74	0.440	4	5
EMP4	Interest in needs	4.73	0.443	4	5
EMP5	Understanding of needs	4.71	0.453	4	5

Table 3 Descriptive statistics of the five dimensions of the SERVPERF model
Source: Own Elaboration (2022)

4.3 Normality tests

To corroborate that the behavior of the data is within the normality curve, by using quantitative methods kurtosis and asymmetry were calculated, with these calculations it was found that the values are within the normality parameters, that is, at calculating kurtosis and asymmetry, values between +1 to -1 were obtained (see table 4).

Ítem	Asymmetry		Kurtosis	
	Statistical	Standard error	Statistical	Standard error
TAN1	-1.269	0.195	0.421	0.389
TAN2	-1.112	0.195	-0.269	0.389
TAN3	-1.038	0.195	-0.453	0.389
TAN4	-0.500	0.195	-1.189	0.389
REL1	-1.476	0.195	1.337	0.389
REL2	-1.090	0.195	0.073	0.389
REL3	-0.872	0.195	-0.567	0.389
REL4	-1.411	0.195	1.533	0.389
REL5	-0.693	0.195	-1.539	0.389
RES1	-1.427	0.195	2.232	0.389
RES2	-0.648	0.195	-0.761	0.389
RES3	-0.725	0.195	-1.495	0.389
RES4	-0.725	0.195	-1.495	0.389
ASS1	-0.888	0.195	-1.227	0.389
ASS2	-0.854	0.195	-1.287	0.389
ASS3	-1.031	0.195	-0.950	0.389
ASS4	-0.958	0.195	-1.097	0.389
EMP1	-0.958	0.195	-1.097	0.389
EMP2	-2.157	0.195	4.695	0.389
EMP3	-1.107	0.195	-0.786	0.389
EMP4	-1.068	0.195	-0.870	0.389
EMP5	-0.958	0.195	-1.097	0.389

Table 4 Skewness and kurtosis calculations of the five dimensions of the SERVPERF model
Source: Own Elaboration (2022)

4.4 Correlations between elements

Due to the scope of this research, in the correlation matrices between elements it is possible to observe how they correlate with each other, thus making it possible to ensure that each element effectively contributes to the factor, given that most of the values were greater than 0.5. (see tables 5, 6, 7, 8 and 9). The results obtained show favorable correlations between the elements of each dimension, except in the Tangibility dimension, the TAN1 and TAN4 variables show correlations less than 0.5, as well as the Responsiveness dimension, the RES1 and RES2 variables also show low values.

	TAN1	TAN2	TAN3	TAN4
TAN1	1.000	0.943	0.830	0.392
TAN2	0.943	1.000	0.884	0.464
TAN3	0.830	0.884	1.000	0.481
TAN4	0.392	0.464	0.481	1.000

Table 5 Correlation matrix between elements of the Tangibility dimension (TAN)
Source: Own Elaboration (2022)

	REL1	REL2	REL3	REL4	REL5
REL1	1.000	0.714	0.686	0.705	0.640
REL2	0.714	1.000	0.864	0.723	0.884
REL3	0.686	0.864	1.000	0.691	0.923
REL4	0.705	0.723	0.691	1.000	0.667
REL5	0.640	0.884	0.923	0.667	1.000

Table 6 Correlation matrix between elements of the Reliability dimension (REL)
Source: Own Elaboration (2022)

	RES1	RES2	RES3	RES4
RES1	1.000	0.400	0.677	0.655
RES2	0.400	1.000	0.562	0.550
RES3	0.677	0.562	1.000	0.912
RES4	0.655	0.550	0.912	1.000

Table 7 Correlation matrix between elements of the Responsiveness dimension (RES)
Source: Own Elaboration (2022)

	ASS1	ASS2	ASS3	ASS4
ASS1	1.000	0.892	0.875	0.875
ASS2	0.892	1.000	0.861	0.892
ASS3	0.875	0.861	1.000	0.904
ASS4	0.875	0.892	0.904	1.000

Table 8 Correlation matrix between elements of the Assurance dimension (ASS)
Source: Own Elaboration (2022)

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	EMP1	EMP2	EMP3	EMP4	EMP5
EMP1	1.000	0.631	0.904	0.855	0.873
EMP2	0.631	1.000	0.578	0.513	0.580
EMP3	0.904	0.578	1.000	0.916	0.904
EMP4	0.855	0.513	0.916	1.000	0.920
EMP5	0.873	0.580	0.904	0.920	1.000

Table 9 Correlation matrix between elements of the Empathy dimension (EMP)
Source: Own Elaboration (2022)

4.5 Correlations between dimensions

In order to identify the relationships between the dimensions of the SERVPERF model, the Pearson correlation was applied between each of these for the hypothesis test. The existence of a significant correlation between the five dimensions was detected (see table 10).

		TAN	REL	RES	ASS	EMP
TAN	Pearson's correlation	1	.840**	.821**	.771**	.751**
	Sig. (bilateral)		0.000	0.000	0.000	0.000
	N	154	154	154	154	154
REL	Pearson's correlation	.840**	1	.788**	.781**	.730**
	Sig. (bilateral)	0.000		0.000	0.000	0.000
	N	154	154	154	154	154
RES	Pearson's correlation	.821**	.788**	1	.838**	.805**
	Sig. (bilateral)	0.000	0.000		0.000	0.000
	N	154	154	154	154	154
ASS	Pearson's correlation	.771**	.781**	.838**	1	.918**
	Sig. (bilateral)	0.000	0.000	0.000		0.000
	N	154	154	154	154	154
EMP	Pearson's correlation	.751**	.730**	.805**	.918**	1
	Sig. (bilateral)	0.000	0.000	0.000	0.000	
	N	154	154	154	154	154

Table 10 Pearson's correlation matrix between the dimensions of the SERVPERF model. ** The correlation is significant at the 0.01 level (bilateral)
Source: Own Elaboration (2022)

5. Annexes

Next, the instrument applied in this investigation is shown, which consists of 22 statements evaluated on a 5-point Likert scale (see table 11).

Variable	Ítems
TAN1	The assistance dining room has equipment that looks modern.
TAN2	The facilities of the assistance dining room are visually adequate.
TAN3	The employees of the assistance dining room have a very well-groomed appearance.
TAN4	Brochures and other printed materials in the assistance dining room are visually appropriate.
REL1	When the assistance dining room promises to do something by a certain time, it complies with it.
REL2	When you have a problem, the assistance dining room shows a sincere interest in solving it.
REL3	The assistance dining room performs the service well the first time.
REL4	The assistance dining room complies with its services in the promised time.
REL5	The assistance dining room always seeks not to make mistakes.
RES1	The employees of the assistance dining room tell you exactly when the service will be completed.
RES2	The employees of assistance dining room provide you with a fast service.

RES3	The employees of the assistance dining room are always ready to help you.
RES4	The employees of assistance dining room always have time to respond to your requests.
ASS1	The behavior of the employees of the assistance dining room generates trust in the users.
ASS2	You feel safe using the assistance dining room.
ASS3	The assistance dining room employees are always courteous to you.
ASS4	The employees of the assistance dining room have the necessary knowledge to answer your questions.
EMP1	The assistance dining room provides personalized attention.
EMP2	The assistance dining room has convenient service hours for its users.
EMP3	The assistance dining room has employees who serve you personally.
EMP4	The assistance dining room really cares about your needs.
EMP5	The assistance dining room employees understand your specific needs.

Table 11 Items for measuring service quality
Source*: Own Elaboration (2022), based on Cronin & Taylor (1992).*

8. Conclusions and recommendations

With this investigation it was possible to corroborate the theory of the SERVPERF model, that includes five dimensions to evaluate the quality of the service based on its performance. There was an instrument suitable for the statistical parameters, duly supported theoretically. Through descriptive statistics, it was possible to identify those elements that influence each variable, in addition to corroborating the normality of the data and identifying the relationships between the five dimensions of the model whose applicability to the studied sector was possible. The hypothesis where the five dimensions proposed in the SERVPERF model for the evaluation of service quality are applicable in the public sector was also verified, therefore, the null hypothesis is rejected and the alternative hypothesis is accepted.

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The main limitations of this study is the selection of the sample, which, although it was supported according to the criteria of Hair *et al*. (1999) with a ratio higher than the suggested minimum, it is necessary to contemplate a simple random probabilistic sample, which allows increasing the scope in terms of coverage for the generalization of results.

Likewise, the statistical analysis was limited to the use of descriptive statistics such as measures of central tendency, normality tests, correlation matrices, and Cronbach's Alpha test. For this reason, it is suggested to apply more tests such as the calculation of the KMO, the Bartlett's Sphericity test, the Exploratory Factor Analysis (EFA), the Confirmatory Factor Analysis (CFA) and the Structural Equation Modeling (SEM), to test relationships between the studied constructs and incorporate more informants, such as different interest groups.

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