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Quality of home public service in a drinking water, cleaning and sewage company in the south Colombian region[*]

Calidad del servicio público domiciliario en una empresa de agua potable, saneamiento y alcantarillado de la región Surcolombiana

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Abstract
This research evaluates the quality of service (QS) of drinking water, sanitation and sewage services provided by a public service company in a peripheral region of Colombia. The study is quantitative and is carried out under the deductive and descriptive method. During the investigation, the SERVPERF scale proposed by Cronin and Taylor (1994) was adapted for the construction of the instrument. 702 surveys were carried out and processed according to the socioeconomic strata of the dwellings in the city. The results indicate that the scale obtained is a reliable and valid instrument to measure perceived quality (Cronbach's Alpha of 0.89); and that the survey is valid in terms of content, pragmatics and concept, which explains 51.60% of

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the variance through six factors, namely: Reliability (30.50%), Empathy (7.50%), Facilities (4.10%), Facilities I (4.00%), Response Capacity (2.80%), and Facilities II (2.70%).
Keywords: Service Quality, Perceived Quality, Home Public Services, Drinking Water

Resumen
La presente investigación evalúa la calidad de servicio (CS) de los servicios de agua potable, aseo y alcantarillado que presta una empresa se servicios públicos en una región periférica de Colombia. El estudio es cuantitativo, y se realiza bajo el método deductivo y de tipo descriptivo. Durante la investigación se adapta la escala SERVPERF propuesta por Cronin y Taylor (1994) para la construcción del instrumento. En total, se realizaron y procesaron 702 encuestas según los estratos socioeconómicos de las viviendas en la ciudad. Los resultados indican que la escala obtenida es un instrumento fiable y válido para medir la calidad percibida (Alfa de Cronbach de 0,89); y que la encuesta es válida en cuanto a contenido, pragmática y concepto, lo que explica el 51,60% de la varianza a través de seis factores, a saber: Confiabilidad (30,50%), Empatía (7,50%), Facilidades (4,10%), Instalaciones I (4,00%), Capacidad de Respuesta (2,80%), e Instalaciones II (2,70%).
Palabras Clave: Calidad del Servicio, Calidad Percibida, Servicios Públicos Domiciliarios, Agua Potable

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SUMMARY

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Introduction

This research on the Quality Service (QS) of Homestead Public Services (HPS) is part of the lines of study of the Faculty of Economics and Administration of the South Colombian University, which is why part of the introduction and the theoretical framework is similar to the study on Evaluation of the Quality of Homestead Public Services conducted by Montaña, Ramírez & Ramírez (2002). The HPSs for drinking water, electricity-wind, fixed-mobile telephone services, and gas are essential for communities' and individuals' social, economic, and environmental well-being worldwide. Thus, every consumer has the right to access good quality services. In Colombia until 1994, the State had the exclusivity to supply them since it was considered that the private sector did not have the resources and incentives to offer them (Ochoa, Valencia, and Ayala, 1990). However, this situation changed in 1990 when the Government allowed the private sector to participate in providing such services. With the laws 142-143 of 1994 and the rulings of the Constitutional Court T-22 and T-187 of 1995, T-368 of 1997, and T-021 of 1998, the State established the incentives for this sector to operate like any other sector of the economy to make investments and recover them. In addition, the rates were adjusted to the real costs of the service, and the State took on the regulator role (Buitrago & Valencia, 2007).

To evaluate the QS in services by a drinking water, sanitation, and sewerage utility company, a variant of the SERVQUAL scale (Parasuramant, Zeithaml & Berry, 1988) was used, called SERVPERF and proposed by Cronin and Taylor (1994). It is a reliable and valid instrument to measure QS from the customer's perspective. Using the SERVPERF scale will make it possible to reach reliable measurements that can serve as a basis for action, monitoring,

and supervision of the progress of the SQ within the framework of the quality assurance programs that HPS companies must implement in Colombia. Managers will be able to use the results to identify, measure, and understand customer perceptions and ensure whether or not these assessments are being met, analyze the best-performing sections, areas, divisions, or branches, compare their performance with that of competitors, and anticipate the needs of consumers. It is expected that this research project will be the basis for the directors of the HPS companies of aqueducts, drinking, cleaning, and sewage waters to structure programs to improve the quality of the services they provide as a result of business policies.

Resolution scheme

1. Research problem

What is the Quality of Service (CS) level of drinking water, sanitation, and sewage services provided by a public utility company in a peripheral region of Colombia?

2. Methodology

The general objective of the present research is to evaluate the QS provided by the companies using the SERVPERF scale. This research was based on seven hundred twenty-six (726) structured surveys applied to users. Twenty-four (24) surveys were removed from the evaluation due to needing to be completed more. The questionnaire followed the following procedure: 1. The perceptions of the SERVQUAL scale called SERVPERF were taken as a basis. 2. an exploratory study was conducted with twenty (20) users to contextualize the surveys. 4. A draft of the instrument was then designed and tested on twenty (20) users. Subsequently, adjustments were made to the questionnaire wording, and they were applied to 726 users according to the different socioeconomic strata. The results estimate a 95.00% confidence margin (5.00% error level). The information collection was carried out in the city of southern Colombia and took place between January and April 2021. The data was analyzed by processing 702 surveys with the SPSS statistical package. With this package, reliability, validity, simplicity and cross-processing, factor analysis, correlations, Cronbach's alpha, and multiple regression analysis are obtained.

According to Grande & Abascal (2017), reliability means that whenever the instrument is applied to the same person, it gives similar results and is reliable when its value is greater than 0.70. Hernández, Fernández & Baptista (2010: 302) state that alpha values greater than 0.50 correspond to an instrument with medium reliability, and those greater than 0.70 have good reliability. When calculating Cronbach's alpha with the 47 items of the applied instrument, a value of 0.89 was obtained, which means that the designed instrument is reliable and that the items collect valid information on the perception of the HPS. The results of Cronbach's alpha are similar to the study carried out in the same company by Montaña, Ramírez & Ramírez (2002), which resulted in 0.90. By dimensions, the reliability is as follows: Tangibility, 18 items, alpha of 0.94; empathy, 10 items, alpha of 0.86; response capacity, 8 items, alpha of 0.82; safety, 5 items, alpha of 0.78 and reliability, 6 items, alpha of 0.72. The results are consistent with what was proposed by Cortina (1993), who maintains that the alpha decreases when the number of items involved in a dimension is lower.

According to Grande & Abascal (2017), validity means that the survey measures what it has to measure; and there are three types of validity: content, pragmatic, and concept. Content

validity means that the items that make up the scale are adequate to make the measurements. It is achieved when a good review of state of the art is made, nationally and internationally, and this was achieved because a specialized review was done on QS STUDIES written in the last thirty-five (35) years in the best American, European, and Latin American journals. Pragmatic validity means that the scale makes current and future predictions and is classified as predictive and concurrent. It is good when its value is greater than 0.50 or the relationship is significant (Grande & Abascal, 2017). A linear regression model was used for predictive validity, where the dependent variable is current satisfaction and the independent variable is an artificial variable on "service quality," which is given by the average sum of the ratings given to all the variables evaluated (P1 to P47). P48 = -1.07 + 1.026 (P1 to P47). Significance: 0.00. The instrument has predictive validity because the significance level is 0.000. A linear regression model was constructed for concurrent validity, where the dependent variable is current loyalty, and the independent variable is an artificial variable, "service quality." P49 = 0.795 + 0.667 (P1 to P47). The instrument has concurrent validity because the level of significance is 0.00.

The concept of validity is divided into convergent and discriminant (Grande & Abascal, 2017). Convergent validity means that the same phenomenon measured differently gives similar results. A linear regression model was used where the dependent variable is the recommendation to third parties, and the independent variable is an artificial variable on "service quality," which is given by the average sum of the scores given to all the variables evaluated. P50 = 0.314 + 0.887 (P1 to P47). The instrument has predictive validity because the level of significance is 0.000. Correlations must be compared with scales that measure different concepts to measure discriminant validity. If these are low, they indicate that there is discriminant validity. The scale used has discriminant validity because when evaluating the equation of recommendation to third parties with the variable: "the offices of the Companies are easy to find." It was found that it is not significant (0.015). P48 = 3.128 + 0.107P1; therefore, the survey has no discriminant validity.

3. Writing plan

3.1 Quality service

The concept of QS has been recently developed in Europe and the United States, starting in the 90s (Grönroos, 1994). The QS of HPS has been a little investigated aspect because it is a difficult dimension to quantify and regulate and is less tangible than price ranges. However, users notice when it is missing (Palacios, 2000). The main contributions to SQ models are those made by Grönroos with his theoretical contribution to the definition and characteristics of the services, the SERVQUAL model by Parasuramant et al. (1985, 1988); and the SERVPERF Model by Croning & Taylor (1992), which are analyzed below.

The evolution of the SERVQUAL model began when Parasuraman et al. (1985) concluded that QS consists of 10 dimensions: 1. Reliability: which implies coherence in action. 2. Responsiveness: refers to the will and skill of employees to provide good services. 3. Professionalism means having the skills and knowledge necessary to provide good services. 4. Accessibility: how easily the client can approach and contact the company. 5. Courtesy includes the courtesy, respect, kindness, and consideration of the service personnel with the clients. 6. Communication: This implies listening to customers and keeping them current. 7. Credibility means trust, honesty, and keeping the customer's interest in mind. 8. Security refers to the client being free from dangers or doubts. 9. Understanding: which required adapting the

service to the client's needs. 10. Tangible elements: which include physical evidence of the service provided.

Moreover, Parasuraman et al. (1985) concluded that QS is meeting or exceeding customer expectations. QS is the difference between expectations and perceptions: expectations are promises companies make to customers; perceptions are how customers receive services through moments of truth. After conducting complementary studies and validating them with the multivariate analysis technique, Parasuraman et al. (1988) reduced the SERVQUAL scale to five factors: 1. Tangibility: Presentation of the physical facilities, equipment, personnel, and communication media. 2 Reliability: Ability to perform the promised service reliably. 3. Responsiveness: Willingness to help users and provide fast service. 4. Security: Knowledge and care shown by employees and their skills to inspire credibility and trust. 5. Empathy: Individualized attention that companies offer to their clients.

Considering these new approaches, Grönroos (1990) argues that the role of marketing in the service sector changed because it became a determining factor and of great significance. Thus, companies contacted experts to apply marketing concepts to services. The transposition of the concepts of quality and total quality from the industrial sector to the world of services emphasizes that quality must encompass products and services, so it is vital to include the customer (Grönroos, 1990). This new vision of customer-centric quality implies that the concept of customer expectations and perceptions is of great importance and that desires, knowledge, experiences, prices, communication, or distribution must be studied to understand the term. In order to do so, one must put oneself in the customer's shoes and appreciate the service in all its manifestations and dimensions (Grönroos, 1990). The separation between the quality of the design (adaptation of the service to the customer's expectations) and the quality of implementation (adaptation of the activities to provide the service) allows us to analyze SQ (Grönroos, 1990) better. Grönroos (1994) states that QS is the result of integrating total quality in the dimensions of technical quality (what is given), functional quality (how it is given), and corporate image, which means that it relates quality to corporate image. The model proposed by Grönroos (1988) indicates that the total perceived quality occurs when the experienced quality satisfies the expected quality.

The SERVQUAL model has not been exempt from criticism. One of the main ones is related to the role of expectations and their inclusion in the measurement instrument. It is considered invalid since it is based on a system of divergences (expectations-perceptions), not attitudes (Cronin and Taylor, 1992). Thus, Cronin & Taylor (1992) propose an alternative model called SERPERF that comprises the 22 items of the SERVQUAL scale but uses only the perceptions of the service. The new model is recommended because there is evidence that clients value the perceived quality of a service in terms of the differences between expectations-perceptions, as the statistics indicate that there is a generalized tendency to value expectations highly and that perceptions are what contributes more to the measurement of QS (Teas, 1993). Likewise, the structure of the questionnaire is criticized because it implies asking a posteriori the expectations prior to the use of the service (Koelemeijer, 1992) and that the scale focuses on the process of distribution of the service and not on the moments of truth (Cronin & Taylor, 1992). Gómez, Méndez & Pérez (1994) maintain that the SERVQUAL model consists of three sections: the first, a list of 22 items (scale from 1 to 7) where the degree of expectation is marked; the second, another list of 22 items (scale from 1 to 7) where the degree of perceptions is marked; and the third, where the evaluation of the clients regarding the relative importance of the five dimensions is quantified, which allows measuring the scores obtained.

According to Horovitz (1990), QS is based on the following principles: the customer is the only judge of quality; the customer is the one who determines the level of excellence of the service; the company must make promises that allow it to achieve its objectives, earn money and differentiate itself from its competitors; the company must take into account the expectations of its customers because it allows reducing the differences between expectations and the provision of the service; the promises of the organization must be transformed into quality standards, and employees must be trained to reduce errors. According to Andrews (1980), the new business concept is corporate strategy, which indicates the duty of the company to set projects and goals based on competitive advantage, strategic planning, and corporate objectives. This new managerial conception implies 1. Knowing the external environment. It involves knowing the company's structure, management styles, plans, and policies to adapt to environmental changes. 2. Satisfy customer needs and expectations. Companies must have a service orientation and good technical quality to achieve this. 3. Be competitive and proactive. It implies a deep knowledge of the sector, the company, the consumer, and customer trends, working with cutting-edge technologies and economies of scale. 4. Quality of the human factor. It means that employees are the company's foundation. Therefore, there must be a strong corporate culture that involves: teamwork, creativity, continuous improvement, autonomy to solve problems, and training employees in new trends.

Schiffman & Kanuk (2010) state that people act and react based on perceptions of products and/or services, not objective reality. The authors argue that such reality is based on people's needs, desires, values, and experiences and that users find it more difficult to evaluate QS than the quality of products. For example, when rating the services of a doctor, users observe the furniture, the presentation, attention, and friendliness of the employees, and the number and the origin of the degrees framed on the walls. Thus, the authors state that QS varies from one day to the next for each employee and client; therefore, the standardization of services must be sought to offer consistent quality.

3.2 Background

When reviewing national and international studies between 1998 and 2020 on HPS, one hundred and two (102) articles were found, of which fifty (50) evaluate various aspects of energy and nineteen (19) numerous aspects of HPS. Twenty-six (26) study drinking water services, six (6) mobile telephone services, and one (1) gas. From the analysis of the 26 studies on drinking water, only 6 studies on SQ apply the SERVQUAL or SERPERF model: SQ (SERVQUAL) and citizen satisfaction (Petracci, 1998) (Argentina: The SERVQUAL model proposes, but not applies); SQ of public companies in Neiva (Montaña et al., 2002) (SERVPERF, Colombia: Alpha 0.90, through factor analysis they identify three factors that explain 46.80%); Satisfaction of the drinking water and sewerage service (Corrales, 2003) (Lima); Satisfaction of urban water and sanitation (Maldonado, 2014) (Peru); Satisfaction of urban water and sanitation (Pastor, 2014) (Peru); Satisfaction of drinking water (Angulo and Peralta, 2016) (Colombia); SQ (SERVQUAL) and customer satisfaction (Benítez, 2016) (Peru: perceptions range between 2.40 and 2.90); Rural water and sanitation in Colombia perception of the water service of the community aqueducts of the commune 13 of Ibagué, with the negative implications that it can have for people's health (Pinilla et al., 2016); Participatory management and its relationship with SQ (Huertas & Silverio, 2017) (Peru: SC perceived by workers is 3.60/5.00); Social perception of the drinking water service (Marqués and Ortega, 2017) (Mexico: 50.00% perceive that drinking water is colorless, tasteless and odorless, and

sometimes contains sandy residues); SQ drinking water and sewerage (SERVQUAL), (Gallegos, Robles & Ahumada, 2018) (Mexico: Cronbach's Alpha 0.73-0.86, and the scale explains 64.50%); Evaluation and improvement of the drinking water supply system (Mejía, 2019) (Mexico); Social perception of the quality and management of drinking water (Ortiz and Núñez, 2019) (Peru); Satisfaction of the drinking water service (Pantoja, 2019) (El Salvador: Good, 44.80% quantity of water is sufficient 72.40%, characteristics of the water 75.90%, price 72.40%, it was not notified in time when the service was cut 58.60%); SQ of drinking water (Pinedo, 2019) (Peru: Low 52.00%); Internal customer satisfaction-SERVQUAL (Tenesaca, 2019) (Ecuador: 28 employees surveyed and found dissatisfaction gaps in all dimensions (-1.52); SQ drinking water supply - biological and chemical analysis (Zúñiga & Mora, 2020) (Costa Rica); SQ (SERVQUAL) of water and customer service (Arroyo & Eufracia, 2019) (Peru: 183 interviewed and concluded that there is a positive relationship between SQ and customer service (Macías, Macías & Cevallos, 2020) (Ecuador: chemical properties); Financial management for the public drinking water company (Zela, 2020) (Ecuador); Rate update (Montesillo, 2020) (Mexico); Problems and tensions associated with water supply (Chaverra & Espinel, 2020) (Colombia); Characterization of local aqueducts (Figueredo, Rincón & Salazar, 2020) (Colombia); Resilient drinking water and sanitation (Paltán, Basani, Minaya & Rezzano, 2020) (Latin America and the Caribbean); Water care in urban settings during the Covid-19 pandemic (Zamora, 2020) (Mexico).

4. Research results

4.1 Socio-economic characteristics

The main socioeconomic characteristics of the surveyed population were Age: 38.60% between 18 and 30 years, 47.60% between 31 and 50 years, and 13.70% over 50 years. Gender: 56.40% female and 43.60% male. Educational level: 2.10% none, 11.30% primary, 44.80% secondary, 41.80% university. Stratum: 10.90% one, 10.90% two, 27.00% three, and 2.57% four or more. Marital status: 30.30% single, 51.00% married or common-law union, 14.70% separated, and 4.00% widower. The number of children: 35.50% none, 47.70% between 1 and 2; 14.50% between 3 and 4; 2.30% 5 or more children. Homeownership: 35.30% owner, 44.70% leased, 18.10% family, and 1.90% other.

4.2 Analysis by dimension

To analyze the dimensions of SQ, the definitions and dimensions proposed by Parasuraman et al. (1988) were taken as a basis, and the ratings by dimensions were the following: tangibility, 3.80/5.00; empathy, 3.70/5.00; security, 3.70/5.00; reliability, 3.60/5.00, and responsiveness, 3.50/5.00. The results for each dimension are explained below:

Tangibility: It relates to the presentation of physical facilities, equipment, personnel, and communication materials (Parasuramant et al., 1988). The level of satisfaction was 56.00% because it was rated 2.80/5.00. From the results, it can be inferred that the best-rated variables were the company's offices are easy to find (3.20), the office staff is well identified, and the cleaning service people sweep the city streets well. (3.20), and the facilities are illuminated (3.00).

Reliability: It is the fulfillment of the promises offered by the company (Parasuramant et al., 1988). The level of satisfaction was 72.00% because it was rated 3.60/5.00. From the results,

it is inferred that the best-rated variables were: the company delivers the receipts of payment on time (3.90), the personnel doing the repairs is well identified (3.90) and the cleaning service collects the trash promptly (3.70).

Empathy: It is the individualized attention that HPS companies offer to their clients (Parasuramant et al., 1988). The level of satisfaction was 68.00% because it was rated 3.40/5.00. From the results, it can be inferred that the best-rated variables were Customer service at the payment sites is good (3.60); employees give individual attention to users (3.50); the service hours are long (3.50), and the schedule of the payment sites are comprehensive (3.50).

Security: It refers to the knowledge and skills of employees to inspire credibility and trust (Parasuramant et al., 1988). The level of satisfaction was 74.00% because it was rated 3.70/5.00. From the results, it is inferred that the best-rated variables were Payment sites are safe (3.80); the people in the cleaning service use the protection elements (3.70), and I trust the jobs the company does.

Responsiveness is the willingness to help users and provide fast services (Parasuramant et al., 1988). The level of satisfaction was 64.00% because it was rated 3.20/5.00. From the results, it can be inferred that the best-rated variables were: The statements are easy to understand (3.50); the service in the paid sites is good (3.80); staff provides adequate information to users (3.40), and the staff makes good recommendations to customers (3.30).

4.3 Principal Component Analysis

It is used to establish a correspondence between the theoretical dimensions of the SQ with those perceived by the Companies' users, which summarizes information from metric variables and explains them using related factors through three (3) criteria (quartimax, varimax, and equimax). The quartimax identifies each variable with at least one of the factors; the varimax identifies a group of variables with a single factor; and the equimax combines the two previous methods (Grande & Abascal, 2017). In the present study, PCA was processed using the varimax method.

The PCA technique consists of two phases: 1. Compliance with requirements: It was evaluated by observing random errors in the survey, and the results were: The original variables must be correlated. (0.88) is found. The determinant of the correlation matrix must be close to zero. (0.0000409) is found. The Bartlett sphericity test evaluates the presence of non-zero correlations between all variables, and the larger the work statistic; it is highly significant. (11697.1) is found. The anti-image correlation matrix represents the degree to which the PCA factors explain each result and is measured because the diagonal correlations must be high (greater than 0.85), and the others must be lower (less than 0.10). (0.92) is found. The Kaiser-Meyer-Olkin index must be greater than 0.80. (0.88) is found. Consequently, all the prerequisites for the application of the PCA are met.

The PCA estimation is based on two elements: the factors and the explained variance. The factors are given by the SQ theory raised by Parasuraman, Zeithaml & Berry (1988) and by Cronin and Taylor (1992), which indicate that the factors are five: tangible elements, reliability, responsiveness, security, and empathy. The explained variance is the contribution of the questions in explaining the problem. The results of the PCA factors using the varimax method by the SQ of the company were 6 factors that explain 51.60% of the problem. Research carried out by Cronin & Taylor (1992) using the SERVPERF scale for various services explains the following percentages of the explained variance: banks (41.10%), gyms (57.50%), laundry

(42.60%), and fast food (29.10%). The current scale to measure the SQ of the company is significant and better explains the problem of the SQ raised by Cronin & Taylor (1992) and Montaña, Ramírez & Ramírez (2002) because the explained variance was 46.80% with three factors. It should be noted that the result was lower than those obtained by Gallegos, Robles, and Ahumada (2018: 64.50%) in their study on SQ of drinking and sewage water carried out in Mexico. The six (6) dimensions of the SQ found in the company are specified below, which explains 51.60% of the variance.

Factor 1. Reliability (30.50%). It relates to the variables: The offices are easy to find, the company sign is visible from afar, the entrance to the customer service office is easily accessible, the personnel who make the repairs are identified with the logo of the company, the facilities are clean, they are identified, illuminated, the shift system is easy to operate, the company delivers payment receipts on time, the company delivers payment receipts without errors, service at the payment sites is good, employees give individualized attention to users, the schedule of the payment sites is broad, the payment sites are safe, the staff is trained to solve the problems of the customers, the employees inspire confidence, the cleaning service collects the garbage promptly, I agree with the garbage collection schedule, the cleaning service people use the protection elements and the cleaning service people sweep the streets of the city well.

Factor 2. Empathy (7.50%). It relates to the variables: The customer service waiting room is very comfortable, the office staff is well-identified, the company has new equipment, and the facilities are spacious and beautiful.

Factor 3. Facilities (4.10%). It relates to the variables: It is easy to communicate with the company, the staff provides adequate information to the users, the employees are concerned about providing solutions to the users' complaints, the employees are courteous, the staff makes good recommendations to the customers, accountants are easy to contact, and the consumer feels confident with the jobs the company does.

Factor 4. Installations I. (4.00%). It is related to the variables: The company communicates the suspension of services in time, the prices of the services offered by the company are reasonable, the staff has time to answer questions, the company answers for those damaged by landfill clogging rainwater, the company's website is easy to navigate, staff resolves customer complaints promptly, and bills are easy to pay.

Factor 5. Response capacity (2.80%). It relates to the variables: The company has an attractive website for complaints and claims, the company makes prompt repairs when there is damage, the price of the services provided by the company is reasonable, the water service seldom fails, and the price charged for the cleaning service is reasonable.

Factor 6. Installations II (2.70%). It relates to the variables: The company offices are easy to find, the company sign is visible from afar, the entrance to the customer service office is easily accessible, the customer service waiting room is very comfortable, and the office staff is well-identified.

From the PCA analysis, it is concluded that the resulting factors do not correspond in their entirety to the SQ theory formulated by Parasuraman, Zeithaml & Berry (1988) and by Cronin and Taylor (1992) because the number of variables was expanded from 22 to 47 and by possible cultural patterns of peoples. It is essential to note that the survey applied has high reliability and validity (Cronbach's alpha of 0.89), and the minimum accepted load was 0.38.

Conclusions

The present investigation evaluated the quality of the company's service by processing 702 stratified surveys. The SERVPERF scale proposed by Cronin & Taylor (1994) was used. The results indicate that the scale obtained is reliable and valid for measuring perceived quality (Cronbach's alpha of 0.89). They also show that the instrument used has content, pragmatic and concept validity, which explains 51.60% of the variance through six factors, namely: Trust (30.50%), Empathy (7.50%), Facilities (4.10%), Installations I (4.00%), Responsiveness (2.80%), and Installations II (2.70%). The results are superior to those obtained by Cronin & Taylor in the United States (1992) on QS because they found the following Cronbach alphas: banks (0.89), gyms (0.90), laundry (0.09), and fast food (0.85). They were also superior to the study carried out in the same Company by Montaña, Ramírez & Ramírez (2002), with 46.80% of explained variance and alpha of 0.88, but lower than those obtained by Gallegos et al. (2018: 64.50%) in their study on SQ of drinking water carried out in Mexico.

The results of the QS of the company could not be compared with other studies that proposed the SERVQUAL model because they only obtained averages and did not calculate Cronbach's alpha: Benítez (2016, Peru: perceptions oscillate between 2.40 and 2.90); Tenesaca (2019, Ecuador: 28 employees surveyed and found dissatisfaction gaps in all dimensions, -1.52); Arroyo & Eufracia (2019, Peru: 183 interviewed and concluded that there is a positive relationship between SQ and customer service).

The image of the company was 3.50/5.00, which indicates a satisfaction of 70.00%. The variables that contributed the most to user satisfaction were that I trust the company's work, the staff has time to answer the questions, the cleaning service people sweep the city streets well, and the cleaning service price is reasonable. Likewise, the variables that contributed the least to user satisfaction were that Invoices are easy to pay, the staff is trained to solve customer problems, and the company's service hours are comprehensive. The results of the multiple regression model were good because the correlation coefficient was higher than 0.40 (0.72) (Grande & Abascal, 2017).

The evaluation of the current loyalty of the company was 3.20/5.00, which indicates a current loyalty level of 64.00%. The variables that most influenced the evaluation of loyalty were: I trust the work that the company does, the water service seldom fails, the company communicates the suspension of services in advance, and the website of the company is easy to navigate. The results of the multiple regression model on current loyalty are good because the correlation coefficient was greater than 0.40 (0.63) (Grande & Abascal, 2017).

The evaluation of the future loyalty of the company was 3.50/5.00, which indicates a level of future loyalty of 70.00%. The factors that most influenced the evaluation of the future loyalty of the public companies were: The staff makes good recommendations to customers, the company has an attractive website for complaints and claims, and it is easy to communicate with the company. The results of the multiple regression model on future loyalty are good because the correlation coefficient was greater than 0.40 (0.62) (Grande & Abascal, 2017).

When performing the indicated statistical analyzes, the following significant correlations were found (alpha less than 0.05) between sociodemographic characteristics and service quality factors: educational level with security; marital status with empathy, number of children with tangibility, reliability and empathy; stratum with tangibility, reliability, and empathy.

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