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Presentation of the Content

In the first article we present, *Assessment of the quality of the food assistance service with the SERVPERF model*, by HUERTA-CHÁVEZ, Irma Alicia, GONZÁLEZ-QUEZADA, Esperanza, SOLTERO-SÁNCHEZ, Jazmín del Rocío and FIGUEROA-OCHOA, Edgar Benjamín, with adscription at the, Universidad Autónoma de Guadalajara and Universidad de Guadalajara, as following article we present, *Degree of relationship between performance and labor productivity in the performance indicators of a service area of a Higher Education Institution in the face of the COVID-19 pandemic*, by ZAYAS-OCHOA, Clarissa, VASQUEZ-TORRES, María de Carmen and CORRAL-CORONADO, Zulema Isabel, with adscription at the, Instituto Tecnológico de Sonora, as following article we present, *Application of Big Data tools in the analysis of visitors to museums and archaeological sites in the State of Oaxaca*, by MORALES-HERNÁNDEZ, Maricela, RAFAEL-PÉREZ, Eva, DIAZ-SARMIENTO, Bibiana and ALTAMIRANO-CABRERA, Marisol, with adscription at the, Tecnológico Nacional de México/Instituto Tecnológico de Oaxaca, as the last article we present, *Identification of market needs for the implementation of a psychological care center*, by SANDOVAL-PALOMARES, Jessica & GARCÍA-RAMÍREZ, Karina Nayeli, with adscription at the, Universidad Tecnológica de León.

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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.

HUERTA-CHÁVEZ, Irma Alicia, GONZÁLEZ-QUEZADA, Esperanza, SOLTERO-SÁNCHEZ, Jazmín del Rocío and FIGUEROA-OCHOA, Edgar Benjamín. Assessment of the quality of the food assistance service with the SERVPERF model. ECORFAN Journal-Republic of Cameroon. 2022

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)

	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.

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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Degree of relationship between performance and labor productivity in the performance indicators of a service area of a Higher Education Institution in the face of the COVID-19 pandemic

Grado de relación entre desempeño y productividad laboral en los indicadores de desempeño de un área de servicios de una Institución de Educación Superior ante la pandemia COVID-19

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Abstract

Objective. Determine the degree of relationship between Performance and labor productivity to identify if there are differences in the performance indicators of a service area of a Higher Education Institution between the face-to-face and home office modality in the face of the Covid-19 pandemic. Methodology. It is a quantitative, correlational research, with a descriptive and cross-sectional scope, it was used from the perspective of a population census. The information was obtained through a questionnaire, an instrument was applied with 41 questions divided for two variables that are Labor performance and Labor productivity. The instrument that was applied was validated by the SPSS program to obtain statistical reliability data and to know its Cronbach's Alpha, the value obtained was .931, considered as a high degree of reliability. Contribution. It was determined that the degree of relationship between Performance and Labor Productivity is positive, the health contingency was not a reason to give up in this Department.

Performance, Labor Productivity, Institution of Higher education

Resumen

Objetivo. Determinar el grado de relación entre Desempeño y Productividad laboral para identificar si existen diferencias en los indicadores de desempeño de un área de servicios de una Institución de Educación Superior entre la modalidad presencial y home office ante la pandemia Covid-19. Metodología. Es una investigación cuantitativa, correlacional, con alcance descriptivo y transversal, fue empleada bajo la perspectiva de un censo poblacional. La información se obtuvo por medio de un cuestionario, se aplicó un instrumento con 41 preguntas divididas para dos variables que son Desempeño laboral y Productividad laboral. El instrumento que se aplicó fue validado por el programa de SPSS para obtener datos estadísticos de fiabilidad y conocer su Alfa de Cronbach, el valor obtenido fue .931, considerado como alto grado de fiabilidad. Contribución. Se determinó que el grado de relación entre Desempeño y Productividad laboral es positivo, la contingencia sanitaria no fue motivo para desistir en este Departamento.

Desempeño, Productividad Laboral, Institución de Educación Superior

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Introduction

Productivity is related to production, which began with the industrial revolution, but since the Second World War it has undergone a remarkable development. It was in 1955 when Japan established the Japan Productivity Center (JPC) in response to the need to challenge international competitiveness, which led to achieving one of the highest levels of productivity in the world in the manufacturing sector (Japan Productivity Center, n.d.). Countries such as China, the Soviet Union, Eastern European countries, Africa, Thailand, Singapore, South Korea, Brazil and Vietnam have imitated Japan's model for increasing productivity (CEFOF, 1995 as cited in Morales & Masis, 2014).

The productivity of companies is the main purpose of managers and they have the responsibility to keep it operating successfully, considering that their collaborators are the ones who contribute a large part of their efforts to meet the assigned goals. Singh (2008) states that "Resources are managed by individuals, who put their efforts in generating goods and services in an efficient way, progressing such production more and more, so any intervention to improve organizational productivity is by its staff" (p.293).

This is how companies seek to increase productivity, wishing to remain active in the market for goods and services, and over the years have made this a strategic objective. Medina (2010) mentions that "without it, products or services do not reach the levels of competitiveness required in the globalized world" (p.112). In the first decade of the 20th century, performance began to be measured as a set of processes.

The initial methodologies were called job analysis and called for individual employees to be measured on the basis of their performance throughout their workday. Performance in public organizations is analyzed in terms of the results or impact of the fulfillment of the mission and also how these were achieved in terms of efficiency, effectiveness, quality and economy, with the purpose of continuing with the same evaluation method to detect whether the performance indicators are being successfully executed (ECLAC, et al., 2005).

The performance indicator systems calculate the impact caused by the performance of the main functions of the organizations, linking profitability with productivity and complementing the indicators, helping to achieve a comprehensive assessment of productivity, creating a record that will help the organization to compare and thus detect the areas in which, when compared, they can increase performance and improve the use of available resources (Morales et al., 2014).

The managers of any organization or educational institution have a great responsibility and commitment to apply systems that are adapted to their organization, whether of different means of action, organizational difficulty and dimension, with the purpose of improving the budgetary process of their company. Higher Education Institutions (HEI), considered as a social system, are influenced by globalization processes, by the strong impacts that Mexican society has experienced in the economic, political and social areas, which leads them to make significant modifications in their total structure, with the purpose of adapting and remaining as a social organism. This can be crucial for the (IES), sometimes these changes are detrimental to labor productivity and performance indicators, being affected with a low compliance and prevents them from reaching the proposed objective.

Currently, the institutions continue to face different challenges and have had to adapt due to the Covid-19 pandemic, which has caused uncertainty in the face of the difficulty. On April 6, 2020, UNESCO, through the International Institute for Higher Education in Latin America and the Caribbean (IESALC), showed the document: "Covid-19 and higher education: from immediate results to the day after. Analysis of impacts, response and recommendations".

This document presents the influence of the pandemic on the higher education team: students, faculty, non-teaching staff, public policies; as well as the institutional responses to the pandemic context. This document presents in a generalized manner the impact of Covid-19 on Higher Education Institutions (HEI), limiting it to recommending the cancellation of classes and the temporary closure of schools (UNESCO IESALC, 2020).

This principle of safeguarding public health made real the shift in school-based higher education from face-to-face to virtual. And with that, this document admits to analyze the impacts of the temporary suspension of face-to-face work in the (IES), the interruption of the usual, the traits of anguish before the crisis apart from generating uncertainty since the demands of the students allude to the detriment of the quality of the classes received online, which is not the same as that of the face-to-face classes (UNESCO IESALC, 2020).

It has definitely been a great challenge for Higher Education Institutions (HEI) to know how to handle all the situations that arise during the Covid-19 pandemic, performance has been affected for students, teachers, administrative staff, maintenance, etc. There are different factors that intervene in the low productivity and with it the non-compliance of the performance indicators, in the case of the collaborator of the (IES) is concerned about meeting their objectives or goals, the virtual modality has been a difficulty for some, because it suffers from technological deficiency.

The world is witnessing that the Covid-19 pandemic caused companies to face different factors that prevented them from meeting their objectives, which in order to achieve them, performance indicators were first established. Not being able to meet business objectives had a direct impact on finances, profits, low demand for products and services, reduction of customer base, etc.

So real is the pandemic situation that the ILO has estimated for Latin America and the Caribbean as a whole, a loss of 10.3% of employment hours for the second quarter of the year, which is equivalent to 25 million corresponding full-time jobs (40 hours per week) (ILO, 2020). The Inter-American Development Bank (2020) considers that, "in different scenarios regarding the period and depth of the crisis, between 4.4% and 14.8% of formal jobs in the region would be lost" (Altamirano, Azuara & González, 2020). Finally, ECLAC projects that, "on average for the year, the unemployment rate will stand at 11.5%, some 3.4 percentage points above the level of 2019, which shows a growth of some 11.6 million in the number of unemployed individuals" (ECLAC, 2020, p.15).

Different companies and institutions were faced with the decision to make home office, managers and employees were not prepared for what this would cause them, it was a modality to which they had to adapt and that had a negative and positive impact, since many companies require the presence of their staff to continue working and caused them organizational decontrol. As well as for the students, as they had to adapt to receiving their classes online.

According to the United Nations Educational, Scientific and Cultural Organization (UNESCO, 2020), about 70% of the world's student population is being affected, while in Mexico (preschool, primary, secondary, middle and high school) a total of 37, 589, 960 students have been affected.

The Covid-19 pandemic has shown different needs, and one of the most important is in the education sector, which has demonstrated the lack of conditions that many people go through in order to get through the school cycle, which has caused school desertion.

The company that needs to be investigated is a Higher Education Institution, in a Department that performs school services. In this Institution there is a management of performance indicators where the high performance of its workers has been shown, but due to the sanitary contingency Covid-19, it is desired to investigate if these have been affected in the performance and labor productivity when performing their tasks from home.

Mentioning the above, it is intended to review the degree of relationship between performance indicators in labor productivity during the Covid-19 pandemic, which leads me to present the following question: What is the degree of relationship between Performance and Labor Productivity in the fulfillment of performance indicators during the Covid-19 pandemic?

The objective is to determine the degree of relationship between Performance and Labor Productivity to identify if there are differences in the performance indicators of a service area of a Higher Education Institution between the face-to-face and home office modality in the face of the Covid-19 pandemic.

Material and Method

It is a quantitative, correlational research, with descriptive and transversal scope. The subjects of the study are collaborators of the service area of a Higher Education Institution, the study was used under the perspective of a population census. The population consisted of a total of 38 collaborators in the administrative area, 12 men and 26 women, of whom 22 are married, 11 are single and 5 are single with children, with a temporary contract for 29 workers and 9 are permanent employees.

Also, different levels of education were observed among the work team, where 18 employees have a Master's degree, 14 have a Bachelor's degree and 6 have a Bachelor's degree.

It is important to mention that the collaborators of the Department under study have high productivity in their performance indicators in the last four years. In 2017 they obtained 97.88% compliance, in 2018 99.70% compliance, in 2019 99.70% compliance and finally in 2020 they obtained 99.65% compliance, this shows the labor commitment of the entire organization.

The information was obtained by means of a questionnaire, an instrument was applied divided for two variables (forming a single one), the first part measured the variable of Job Performance and the second measured the variable of Job Productivity as well as its dimensions, it consisted of a total of 41 questions, corresponding 21 questions to the variable of Job Performance and 20 questions to the variable of Job Productivity.

The instrument is a hybrid of the authors Lorenzo (2018); Clark (2018); Rojas and Vilches (2018) and Guzmán (2017) adapted to the needs of this research.

The first variable: Job performance, has three dimensions based on Robbins (2004), Quality of work, Teamwork and Job satisfaction.

The second variable: Labor Productivity, has been operationalized in two dimensions, Effectiveness and Efficiency, from the authors Robbins and Judge (2013).

Procedure

The procedure was carried out in 11 phases

Phase 1. A search of concepts from different authors on the research approach was carried out, identifying whether it is quantitative or qualitative, and it was determined according to the characteristics of the study.

Phase 2. An exploration of definitions of the scope of the study was made, and it was found that the most used author in this type of research is Hernandez *et al*. (2014) with his book Research Methodology, which facilitated to determine it.

Phase 3. In order to gather information on the subjects, a population census was carried out in which the Head of Department of the Institution under study was asked for the data necessary to construct the characteristics that make up the population.

Phase 4. The design of the instrument that was applied was considering various authors, with the intention of detecting the variables and dimensions discussed in this research, making an adaptation of the items. The instrument used for Work Performance was adapted from Clark (2018), Rojas and Vilchez (2108) and the Work Productivity instrument was adapted from Lorenzo (2018) and Guzmán (2017).

Phase 5. A pilot test was conducted with 10 collaborators; the instrument applied was validated by the SPSS program to obtain statistical data on reliability and to determine its Cronbach's Alpha. The first variable Job performance has three dimensions: Quality of work obtained an alpha of .860, Teamwork obtained an alpha of .736 and Job satisfaction obtained an alpha of .898. The second variable Labor Productivity has two dimensions, Effectiveness obtained an Alpha of .815 and Efficiency obtained an Alpha of .770. This indicates that the value obtained was .931, considered a high degree of reliability in the SPSS program (see Table 1).

Likewise, the questionnaire is Likert scaled (with a measurement scale from 1 to 5).

Phase 6. The instrument was sent as a pilot test, answered by 10 collaborators of the service area of the Higher Education Institution by e-mail, considering the current situation of the Covid-19 pandemic.

Phase 7. The instrument was applied to the rest of the population through Google Drive, obtaining a database that was analyzed in the SPSS system to interpret the results.

Variables	Dimensions	Ítems	Questions	Cronbach's alpha
Job performance	Quality of work	7	1-7	.860
	Teamwork	7	8-14	.736
	Job satisfaction	7	15-21	.898
Labor productivity.	Efficiency	10	23-31	.815
	Efficiency	10	32-41	.770

Table 1 Cronbach's alpha score for the research study variables
Source: Own Elaboration

Phase 8. The excel file was downloaded from google drive with the answers of all the Department's collaborators, which was entered into the SPSS system and correlated with the following data.

Phase 9. The interpretation of results was based on the authors Hernández, Fernández and Baptista (2014), determining the correlation coefficient yielded as: very weak positive correlation, weak positive correlation, medium positive correlation, considerable positive correlation, very strong positive correlation and perfect positive correlation.

Phase 10. In the discussions, the data obtained from the results are considered, mentioning the level of performance and productivity of the collaborators.

Based on all the research, conclusions and recommendations were drawn for the company under study or in case someone else takes it over.

Results

The results are interpreted by means of a correlation, which shows the relationship between performance and labor productivity, which can be seen in Table 2, then a description of the correlation between dimensions is made.

With a confidence level of 95%, Quality of work and Teamwork, it is stated that there is a correlation of .374*, it is considered a weak positive correlation, increasing one percentage unit will result in an increase of 13.98%. According to the authors Hernandez, Fernandez and Baptista (2014) state that when the correlation coefficient is squared, the percentage unit that would be increased in relation to these dimensions is obtained.

		Quality of work	Teamwork	Job satisfaction	Efficiency	Eficiencia
Quality of work	Pearson correlation	1	.374*	.406*	.639**	.625**
	Sig. (bilateral)		.021	.011	.000	.000
	N	38	38	38	38	38
Teamwork	Pearson correlation	.374*	1	.346*	.387*	.573**
	Sig. (bilateral)	.021		.033	.016	.000
	N	38	38	38	38	38
Job satisfaction	Pearson correlation	.406*	.346*	1	.713**	.636**
	Sig. (bilateral)	.011	.033		.000	.000
	N	38	38	38	38	38
Efficiency	Pearson correlation	.639**	.387*	.713**	1	.864**
	Sig. (bilateral)	.000	.016	.000		.000
	N	38	38	38	38	38
Efficiency	Pearson correlation	.625**	.573**	.636**	.864**	1
	Sig. (bilateral)	.000	.000	.000	.000	
	N	38	38	38	38	38

* The correlation is significant at the 0.05 level (bilateral).
** The correlation is significant at the 0.01 level (bilateral).

Tabla 2 Correlativity Performance and Labor Productivity
Source: Own Elaboration

With a confidence level of 95%, Job Quality and Job Satisfaction is stated to have a correlation of .406*, it is considered a weak positive correlation, increasing by one percentage unit will result in 16.48%.

At a 99% confidence level, Quality of Work and Efficacy is stated to have a correlation of .639**, this is considered a medium positive correlation, an increase in one percentage unit will result in an increase of 40.83%.

With a confidence level of 99%, Quality of Work and Efficiency can be stated to have a correlation of .625**, this is considered a medium positive correlation, indicating that an increase in one percentage unit will result in 39.06%.

Teamwork and Job Satisfaction is affirmed with 95% confidence, having a correlation of .346*, it is considered as a weak positive correlation, increasing one percentage unit will result in an increase of 11.97%.

Teamwork and Effectiveness is affirmed with 95% confidence with a correlation of .387* considered a weak positive correlation, increasing by one percentage unit will result in a 14.97% increase%.

Teamwork and Efficiency is affirmed with 99% confidence, with a correlation of .573** considered as a positive average correlation, increasing one percentage unit will result in a 32.83% increase%.

Job Satisfaction and Efficacy is affirmed with 99% confidence, with a significant correlation of .713**, it is a considerable positive correlation, increasing by one percentage unit, will result in an increase of 50.83%.

With 99% confidence Job Satisfaction and Efficiency a correlation of .636** can be affirmed, it is considered a medium positive correlation, increasing one percentage unit will result in an increase of 40.44%.

With 99% confidence Efficacy and Efficiency is affirmed with a significant correlation of .864**, a significant positive correlation, increasing by one percentage unit will result in an increase of 74.64%.

As could be observed, the relationship between Job Performance and Labor Productivity is positive. Where the dimensions of the variable Job Performance show a low relationship with each other, Job Quality and Teamwork obtained a .374* correlation, Job Quality and Job Satisfaction obtained a .406* correlation and Teamwork and Job Satisfaction obtained a .346* correlation with a confidence level of 95%. 346* correlation with a confidence level of 95%, but obtained a good relationship with the Labor Productivity variable, however, the dimensions of the Labor Productivity variable show a very good relationship with each other since Effectiveness and Efficiency obtained .864** correlation with 99% confidence, which indicates that there is high Productivity and low Performance in the collaborators of the service area of the Higher Education Institution.

Regardless of the low dimensions Quality of Work, Teamwork and Job Satisfaction of the variable Job Performance, it was noted that there is very good labor productivity because the dimensions that make up Effectiveness and Efficiency are within .864** correlation, this indicates that workers in the service area have very good Effectiveness and Efficiency, and this is confirmed in Table 3 Percentage of performance indicators which shows the results of the percentage of compliance with performance indicators established by the area of the last four years in this Department.

Percentage of performance indicators				
Area	2017	2018	2019	2020
Information Services Management	98.76%	99.64%	99.55%	99.72%
Administration of S. E.	99.38%	99.90%	100%	100%
Coordination of R. & C. Systems E.	100%	100%	99.53%	100%
E. R. Services Administration	93.87%	99.80%	100%	100%
Headquarters	97.40%	99.16%	99.42%	98.57%
Total	97.88%	99.70%	99.70%	99.65%

Table 3 Percentage of performance indicators
Source: Own Elaboration based on the information provided by the Head of the corresponding area

It can be observed that the performance indicators not only remained the same, but increased despite the fact that they were working in the home office due to the Covid-19 pandemic. This indicates that the staff is committed to their work, regardless of where they are performing their work activities they comply with the deliverables of the Department, this can be reinforced by observing the results of the highest correlations, which are between Efficiency and Effectiveness with .864** correlation.

Discussions

The results obtained in this research indicate that there is a positive relationship between the variables Labor Performance and Labor Productivity belonging to the collaborators of the service area of the Institution of Higher Education. The analysis shows that in the variable Job Performance the 38 employees surveyed expressed that in Quality of work and Teamwork they obtained .374* correlation, Quality of work and Job Satisfaction .406* correlation and Teamwork and Job Satisfaction .346* correlation showing a weak positive correlation.

However, in the Labor Productivity variable, the 38 employees surveyed indicated that they have a very good level of Effectiveness and Efficiency, obtaining a correlation of .864**, indicating that it is a considerable positive correlation.

Aguinis (2007) mentions that performance is what employees do and their behaviors and not what the employee produces or the results of their work, although sporadically as behaviors or activities are not clearly observable, it is necessary to infer them from their results. Which indicates that in the Department of the service area has a low level of Job Performance in Quality of work, Teamwork and Job Satisfaction, but they are highly productive with very good Effectiveness and Efficiency, achieving the goals set. Robbins and Judge (2013) mention that an organization is productive if it achieves its goals by converting inputs into outputs at the lowest cost.

Chiang and Ojeda (2013) mention that between the fifties and sixties there was a series of studies to establish the relationship between satisfaction and productivity. The results obtained show a very consistent relationship between the two, establishing that "a happy worker is a productive worker"; although, in the nineties more studies were made that disagreed a little with the previous conclusions, since although they affirm the existence of a positive relationship, it is established that the correlation is not so high.

In the research of Chiang and Ojeda (2013) found that V. H. Vroom (1964) analyzes the data of 23 researchers on the possible correlation between satisfaction and performance. From the examined results only in three researches a positive and significant correlation between job satisfaction and performance is created. The rest of the studies show that there is little or no relationship between the two variables. The median value of the correlation was 0.14, which suggests that 2% of the variation in performance can be related to job satisfaction scores.

The results support the idea that there is no empirical evidence of a relationship between job satisfaction and job performance. Only a slight positive, but low, correlation between these constructs could be recognized.

This is similar to the results of this research, there was a positive relationship between Performance and Labor Productivity, where a low correlation is noted between the Performance dimensions and a very good correlation between the Productivity dimensions.

With this analysis of results, the Department under study will be favored by detecting the weaknesses that exist and internal adjustments can be made, eliminating possible problems that allow the achievement of organizational goals and thus the collaborators execute their activities improving day by day and positively impacting their performance and labor productivity.

Conclusions

In the study carried out, it is possible to affirm the existence of a positive relationship between Performance and Labor Productivity, but it is established that the correlation is not so high. Although there is no high correlation between some dimensions, it was determined that the performance indicators in labor productivity of workers in the service area of the Institution of Higher Education remain high in the face of the Covid-19 pandemic, the health contingency was not a reason to give up on this Department, since the percentages of compliance with indicators show that they are highly productive and continue to meet organizational goals.

Thus, the objective of this research is achieved, where the degree of relationship between Performance and Labor Productivity is positive, and there is no difference in the fulfillment of performance indicators between the face-to-face and home office modality in the face of the Covid-19 pandemic, since the performance indicators remained high but also increased.

The strongest and most positive relationship was identified in the Labor Productivity variable, between the Effectiveness and Efficiency dimensions with a correlation of .864**. This indicates that the employees in the service area are highly productive and responsible when performing their activities.

The lowest relationship is in the variable Job Performance, between the dimensions Job Quality and Teamwork obtained .374* correlation, Job Quality and Job Satisfaction .406* correlation and Teamwork and Job Satisfaction .346* correlation, being a weak positive correlation, this shows the importance of paying attention and focusing on the needs of workers to obtain more satisfied and productive employees, this will increase the effectiveness of the Department and the welfare of its employees.

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Article

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Application of Big Data tools in the analysis of visitors to museums and archaeological sites in the State of Oaxaca

Aplicación de herramientas de Big Data en el análisis de visitantes a museos y zonas arqueológicas del Estado de Oaxaca

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Abstract

This article is the result of the analysis of visitors to the archaeological zones of the state of Oaxaca, in the year 2021 applying Big Data tools. The original data was taken from the INAH (2021). The CSV (Comma Separated Values) file contains the columns: State, SIINAH Code, Acronyms, Work Center, Year, Month, Type of visitors, Number of visits, and Nationality. The objective is to illustrate the application of big data tools in the analysis of large volumes of data, in this case study, only a fragment of the data has been used, which corresponds to the Oaxaca State. The analysis was carried out with its own methodology based on the MAMBO methodology (Muñoz and Sánchez, 2019), in the applied methodology the following phases are identified: data acquisition, their management, the search for information in the data and their order and display. One contribution is the generation of a guide in which the reader will be able to identify the process of applying big data tools.

Big data, Analysis, Visualization

Resumen

Este artículo es el resultado del análisis de visitantes a las zonas arqueológicas del estado de Oaxaca, en el año 2021 aplicando herramientas de Big Data. Los datos originales se tomaron de la página del INAH(2021). El archivo CSV (Comma Separated Values), contiene las columnas: Estado, Clave SIINAH, Siglas, Centro de trabajo, Año, Mes, Tipo de visitantes, Número de visitas, y Nacionalidad. El objetivo es ilustrar la aplicación de herramientas de big data en el análisis de grandes volúmenes de datos, en este caso de estudio, se ha usado solo un fragmento de los datos, los cuales corresponden al estado de Oaxaca. El análisis se realizó con una metodología propia basada en la metodología MAMBO (Muñoz y Sánchez, 2019), en la metodología aplicada se identifican las siguientes fases: adquisición de los datos, el manejo de los mismos, la búsqueda de información en los datos y el orden y visualización de los mismos. Una contribución, es la generación de una guía en la que el lector podrá identificar el proceso de aplicación de herramientas de big data.

Big data, Análisis, Visualización

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Introduction

In this article, a guide to the application of Big Data analysis tools for data analysis is presented, in this case, a public access dataset (INAH, 2021) has been selected, which stores information on visitor records to archaeological sites in Mexico during the year 2021. The CSV format file was fragmented, using in the analysis only the records corresponding to the state of Oaxaca.

For Skiena (2017) Big Data consists of massive amounts of rows (records) in a relatively small amount of columns (features). For this author, Big Data is often excessive to accurately fit a single model for a given problem.

So, a customized model can be trained to fit each user of the data. For Sathi (2012), there are two sources of Big Data, the first has to do with data that is generated within an organization, these may include: emails, PDF documents, events, blogs, and in general, any structured, unstructured or semi-structured data available in the organization. The second source of data is found outside the organization, in this group are free public data such as the one used in this research work, others are available for a fee and still others are available to business partners or specific customers. They can be found in social networks, information from competitors, governmental or non-profit organizations, among others.

According to Dietrich, Heller and Yang (2015) three attributes stand out that define the characteristics of Big Data: (1) large volume of data, (2) complexity of data types and structures, and (3) speed of creation and growth of new data. When a very large store of data is available, the data can be analyzed to gain knowledge from it. Understanding that knowledge discovery according to Singhal and Himanshu (2022) is defined as the method used to discover interesting, previously unknown and potentially useful patterns from a large amount of data.

For Big Data analysis, there are different tools in the market, most of them have a cost. For this case, and in order to exemplify the use of such tools, the services that AWS (Amazon Web Services) offers for the treatment and analysis of Big Data were specifically selected; those that were used are briefly explained below:

Redshift is a petabyte-scale data storage service fully managed in the AWS cloud (AWS, 2022). Candela *et al* (2011) define a petabyte as 1015 bytes, which implies a very large amount of data storage space. The Amazon Redshift data store is a collection of compute resources called nodes, which are organized into a group called a cluster. So each cluster runs an Amazon Redshift engine and can store one or more databases (AWS, 2022). So you are talking about a data warehouse that can seamlessly manage large volumes of data.

The first step in creating a data warehouse is to launch a set of nodes, called an Amazon Redshift cluster. After configuring the cluster, a dataset is loaded, and then data analysis queries are performed. Regardless of the size of the dataset, Amazon Redshift provides query performance.

For the present work, Redshift has been used to clean, prepare and load the data to be analyzed (creating the Data Warehouse), analyzing relevant information through SQL queries (Structured Query Language), which can give rise to interpretations of this information and thus be able to make decisions regarding what is found. Piñeiro (2015) defines SQL as a language that is used as a standard and includes instructions for data definition, manipulation and control. It is an official standard in the United States by ANSI (American National Standards Institute) and as an international standard by ISO (International Standards Organization).

On the other hand, Fernandez (2022) explains that S3 is the Amazon Web Services (AWS) object storage service of type PaaS (Platform as a Service), being a common solution to store data in the cloud in a secure, efficient and scalable way. Data in S3 is stored as objects within Buckets. An object is the basic unit of storage in S3, consisting of a file with an identifier and associated metadata. While a Bucket in Amazon S3 is nothing more than a high-level logical directory in which objects are located, each of them identified with a key.

For the present work, S3 has been used to store the CSV and JSON files with which the data analysis is performed.

Jensen (2020), describes QuickSight as a business analytics service with tailored analytics to derive business insights from data.

AWS (2022) describes it as a cloud-scale business intelligence service that can be used to deliver easy-to-understand insights to key people, wherever they are. QuickSight connects to data in the cloud and combines data from disparate sources. As a fully managed cloud-based service, it also provides enterprise-grade security, global availability and built-in redundancy.

For the case study, QuickSight is used to display an easy-to-understand dashboard with summarized and concrete information to support organizational decision making.

The article is composed of seven sections, which are described in the next paragraphs.

Methodology to be developed

For Big Data analysis there are different methodologies, although all of them agree on general steps and some in particular add or omit some. For example, Lin *et al* (2008) describe the CRISP-DM methodology (Cross Industry Standard Process for Data Mining), which consists of six phases as shown in Figure 1.
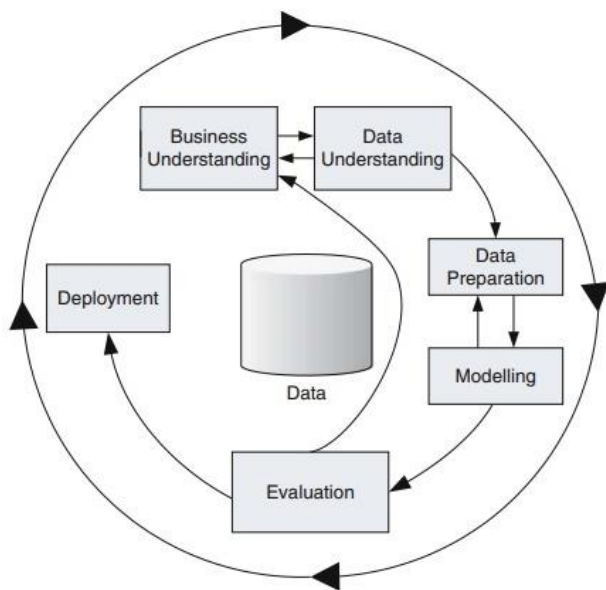
Figure 1 Cross-industry standard process for data mining
Lin et al (2008)

On the other hand, Muñoz and Sanchez (2019) propose a method they have called MAMBO (Meditate on the business, Acquire the data, Manage the data, Search the data, and finally, Sort and visualize), as can be seen in Figure 2.

Figure 2 MAMBO Methodology
The art of measuring (2022)

Both methodologies have similar phases or stages, and for the present work only four steps were proposed based on the MAMBO methodology:

1.   Acquire data
2.   Manage the data
3.   Searching the data
4.   Sort and visualize

Development

Based on the MAMBO methodology, the steps followed for the analysis of visitors to the archaeological sites of the state of Oaxaca in the year 2021 are those described in the previous section. The following paragraphs describe the activities carried out in each of these steps.

Acquire the data

The acquisition of data was done directly from a public data source maintained by INAH (2021), this data source contains information from all the archaeological sites administered by INAH throughout the Mexican Republic. Therefore, there was no need to compile data from the original sources.

Data management

As mentioned above, data in csv format were downloaded from the web page https://datos.gob.mx/busca/dataset/visitantes-a-museos-y-zonas-arqueologicas-abiertas-al-publico, concentrated in a general report of national and foreign visitors to Mexico's cultural sites open to the public during the year 2021.

From the acquired file, only the records for the state of Oaxaca were selected, converting the file to a "JSON" (JavaScript Object Notation) file. This first file was uploaded to an S3 bucket in AWS, as shown in Figure 3.
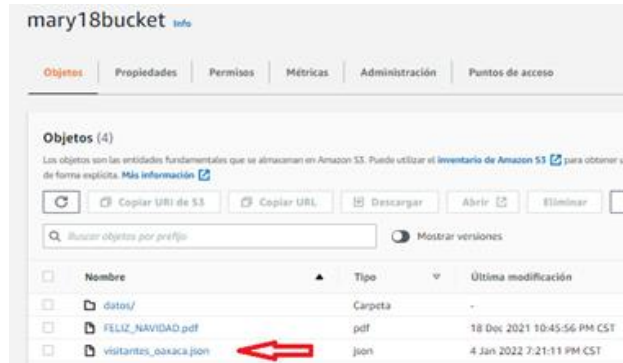

Figure 3 Files stored in the bucket created in S3. AWS Amazon

The original data file contains the columns shown in Table 1.

State
Key
SIINAH
Acronym
Work center
Year
Month
Type of visitors
Number of visits
Nationality

Table 1 Columns of the CSV file
INAH (2021)

Searching the data

In order to start the data analysis, the Redshift tool is used, so a cluster is created. For this work, the cluster redshift-cluster-1-maricela was created with the characteristics presented in Figure 4.
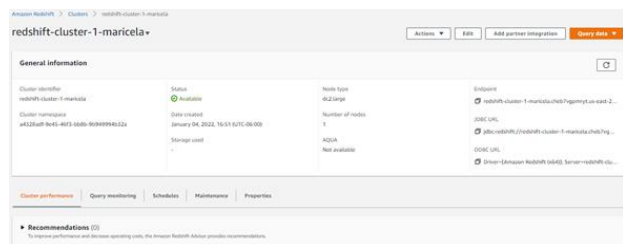
Figure 4 Summary of the redshift-cluster-cluster-1-maricela cluster
AWS Amazon

Once the cluster is created, Redshift is accessed to import the JSON files to this service, for this, the table vistantes_oaxaca is created, to which the records that are in the JSON file are injected, the SQL instructions are detailed below:

create table visitantes_oaxaca
(
    estado varchar(max),
    clave varchar (max),
    siglas varchar(max),
    centro_t varchar (max),
    anio varchar (max),
    mes varchar (max),
    tipo_vis varchar(max),
    num_visitas varchar(max),
    nacionalidad varchar(max)
);

Once the table has been created, data injection is performed with the following instructions:

copy visitantes_oaxaca
from
's3://mary18bucket/visitantes_oaxaca.json'
iam_role
'arn:aws:iam::198272932368:role/redshift1'
format as json 'auto'
region 'us-east-2';

As a result of the data injection, a total of 2563 records were loaded into the vistantes_oaxaca table. It should be noted that it is required to have the necessary permissions to be able to write on the cluster that has been previously created. As well as the "iam" role is created in advance.

Once the data is loaded, different simple queries are made on the data and as an example some queries such as: the number of visitors per month, for this the following SQL instructions are used:

select mes,count(centro_t)
from visitantes_oaxaca
group by mes
order by mes;

The result of the consultation can be seen in Figure 5. This result shows that the flow of visitors is very similar in the different months of the year.

Figure 5 Visitor query results by month for Oaxaca
AWS Redshift

Another simple query would be to know how many national and how many foreign visitors visited the archaeological zones of Oaxaca, the result can be seen in Figure 6.

Figure 6 Visitors by nationality for Oaxaca.
AWS Redshift

Here it can be seen that national visitors predominate, so it can be assumed that in the archaeological zones of Oaxaca, the flow of visitors is mostly national visitors.

Sort and visualize

Once the Data Warehouse is generated in Redshift, it is exported to Quick Sight in order to present the results of the data analysis in a Control Panel using graphs that are easy to interpret by the user of the information.

In order to use QuickSight it is required to have a user created specifically for the use of this tool, for the exercise a user was created previously. So the next step is to create a new analysis in QuickSight, once this new analysis is requested, a new data source must be created, so that the data loaded in Redshift can be used, Redshift (automatic detection) is selected, as can be seen in figure 7.

Figure 7 Data source selection
QuickSight Amazon

In order to import the data previously loaded in Redshift, it is required to perform the proper configuration of the data source, done this, the available tables are shown as illustrated in Figure 8.
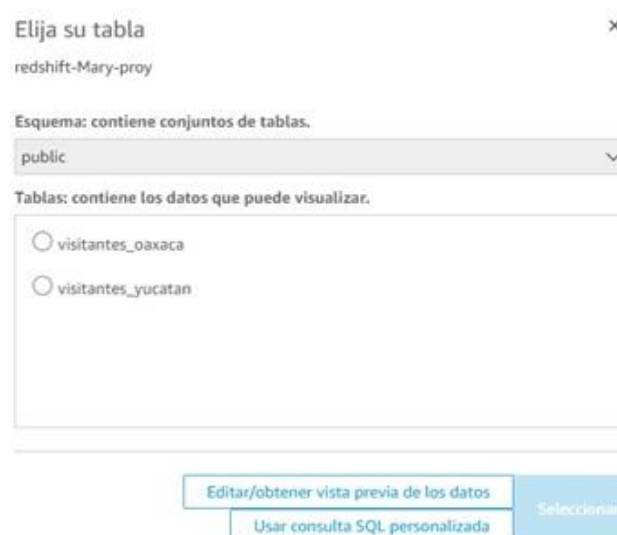
Figure 8 Data source table selection
QuickSight Amazon

When the table is selected, the data is loaded into QuickSight and can now be visualized by clicking on the "Visualize" button, as shown in Figure 9.
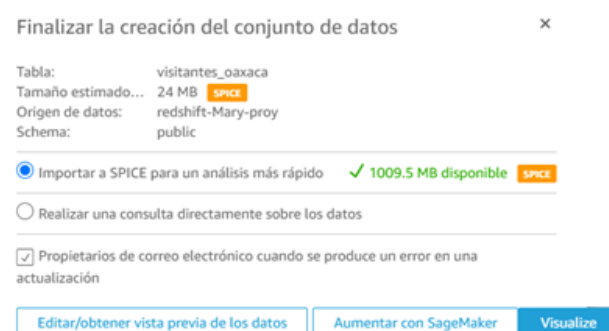

Figure 9 Successful data upload
QuickSight Amazon

The main panel for the analysis is shown in Figure 10, as can be seen, it notifies that the data import has been completed and shows the number of imported rows.
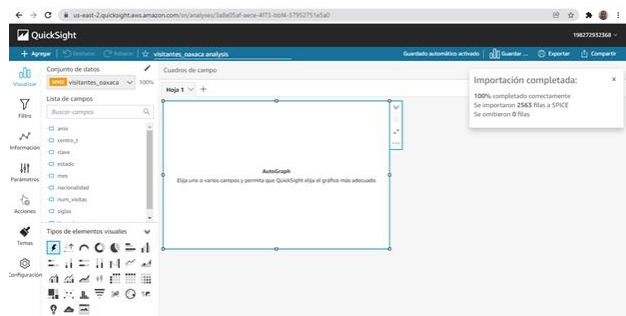

Figure 10 Main panel of an analysis in
QuickSight Amazon

From this point on, you can start visualizing the data through graphs that facilitate its analysis and allow the data user to make decisions about the information found. The results section shows the graphs obtained, as well as a brief interpretation of them.

Results

As a result of the application of the AWS data analysis tools, the following graphs are presented. Graph 1 shows the number of visits per month, for example, the value shown means that in November there were 212 visits to the archaeological sites and museums in the state of Oaxaca. This could be an opportunity for INAH to look for strategies to increase the interest of the population in the knowledge of the pre-Hispanic cultures in the state.

Graph 1 Visits per month
Own Elaboration

An analysis of the types of visitors was also made, so that, in Graph 2, a summary of how many visitors are nationals and how many are foreigners is presented, showing that nationals predominate.
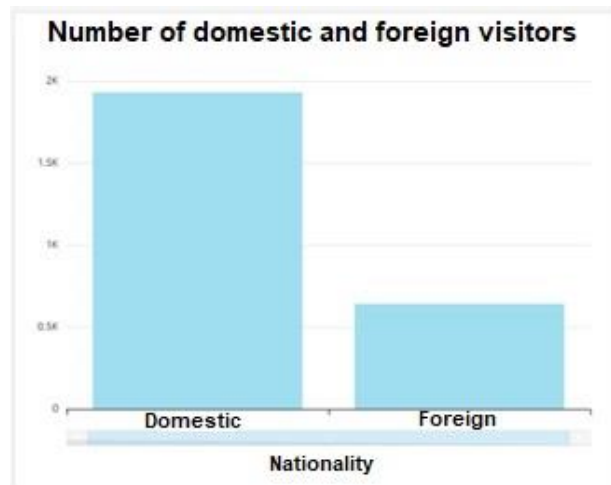
Graph 2 Number of domestic and foreign visitors
Own Elaboration

Graph 3 shows the number of visits per archaeological zone or museum or cultural space registered. In QuickSight, by sliding the pointer over the graph, the quantity for that category can be visualized, as can be seen in the same graph.

Graph 3 Visitors by archaeological zone or cultural site
Own Elaboration

Graph 4 shows the number of visits by type of visitor, and shows that there are people who visit cultural spaces and are willing to pay for their admission, as shown in the category of temporary exhibitions with additional cost and the paid ticket category, since these are the records that appear with the highest percentage in the graph.

Graph 4 Visits by type of visitor
Own Elaboration

Acknowledgements

Conclusions

The use of Big Data analysis tools is becoming an imperative need for organizations if they need to gain knowledge from the data they have accumulated over time. The data itself has a value, as it can be consulted by the personnel who manage it; however, in order to make decisions it is important to treat it through a methodology. The problems regularly faced by the team analyzing the data are that they come from different sources and may have different formats. So, the first challenge is to homogenize them, the second challenge will be the data cleaning process, based on the experience of the data analyst, this process will be more or less complicated. And, once an adequate data warehouse is in place, the next step is to apply the tools for its analysis, management and visualization.

At the beginning of this paper, the objective was to illustrate the application of Big Data tools in the analysis of the data recorded by INAH of the visitors who come to the archaeological sites of the state of Oaxaca.

Therefore, it is hoped that this work can offer readers a guide to the transition in the use of data analysis tools; without forgetting that a methodology is required to obtain useful results, in this case a methodology based on the MAMBO methodology was proposed.

The experience obtained in this exercise is that the tools are useful to be able to deploy the knowledge found in the Big Data of the organizations. But, looking to the future, it is important that the data from its origin be as consistent as possible so that the result of the analysis can really provide organizations or companies with the certainty to make decisions based on their data.

In the future, comparative analyses with other tools can be established in order to analyze the convenience of using one or the other.

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Identification of market needs for the implementation of a psychological care center

Identificación de las necesidades del mercado para la implementación de un centro de atención psicológica

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Abstract

Introduction. The World Health Organization (WHO) conceptualizes mental health as the state that allows the person to use their varied abilities, cope with the normal stress of life, work productively and fruitfully, and contributing significantly to their community. Objective. The following article presents the results of a study that was carried out to identify the needs of a market in order to lay the foundations for the development of a marketing plan for the implementation of a Psychological Support Care Center specialized in women's care. Methodology. Through a survey, information was collected about the different needs that a center must meet to offer mental health services. Results. The sample analyzed was 113; the instrument is constructed by items to analyze the sociodemographic and psychographic profile, and identify the lifestyle, interests, and perceptions of the women who made up the sample. Conclusion. Anxiety disorder is identified as a problem present in women, so the center must implement the relevant strategies for its care.

Market research, Anxiety, Marketing plan, Psychological care

Resumen

Introducción. La Organización Mundial de la Salud (OMS), conceptualiza a la salud mental como el estado que permite a la persona utilizar sus variadas habilidades, afrontar el estrés normal de la vida, trabajar productiva y fructíferamente, contribuyendo significativamente a su comunidad. Objetivo. En el siguiente artículo se presentan los resultados de un estudio que se realizó para identificar las necesidades de un mercado con la finalidad de sentar las bases para el desarrollo de un plan de marketing para la implementación de un centro de Atención de Apoyo Psicológico especializado en atención a mujeres. Metodología. A través de una encuesta se recabó información en torno a las diferentes necesidades que un centro debe atender para ofrecer servicios de salud mental. Resultados. La muestra analizada fue de 113; el instrumento está construido por ítems para analizar el perfil sociodemográfico y psicográfico, e identificar el estilo de vida, los intereses y la percepción de las mujeres que conformaron la muestra. Conclusión. Se identifica como problemática presente en las mujeres el trastorno de ansiedad, por lo que en centro debe implementar las estrategias pertinentes para su atención.

Estudio de mercado, Ansiedad, Plan de marketing, Atención psicológica

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Introduction

Affective and mood disorders generally originate at an early age, significantly reduce people's daily functioning in personal, social, family and work environments, and are considered frequent and recurrent conditions, which entail high economic costs (Wagner, *et al*., 2012). Depression and anxiety are disabling illnesses and are therefore priority targets for attention around the world; An example of this is the diagnosis of the mental health situation carried out by the World Health Organisation (WHO, 2020), which identified the presence of a mental disorder as one of the causes of disability and mortality in different countries, An example of this is that people suffering from depression or schizophrenia have a 40-60% chance of premature death compared to the general population, because they do not attend to their health situation, and neither do diseases not associated with mental disorder, such as cancer, cardiovascular disease, hypertension, diabetes, HIV infections, etc. Globally, the study reports that the second most frequent cause of death in young people is suicide (WHO, 2020).

In a research carried out in collaboration between the WHO and the World Bank, it was determined that the cost generated by mental illnesses to society identified that neuro-psychiatric illnesses have an investment of approximately 20% of the total cost of medical illnesses, with depression standing out, which alone represents an expenditure of 36.5% of the allocated budget; in second place is alcoholism with 11.34% of the total investment in health (WHO, 2014).

In Mexico, Medina-Mora and Carreño-García (2018), refer that the annual prevalence rate in the population aged 18-65 years, depression was 4.8 %; while anxiety disorders accounted for 6. 8 %, and that when translated into years of life, mental illnesses in men correspond to 25 % and in women to 23 % of their total years of life; specifically, when talking about disabling diseases, depression in women obtains the first place of prevalence and the second in men; for men, low back pain is the most frequent disabling disease; Díaz-Castro L, *et al*, (2019) mention the type of mental health scenario in the country, they report that the intervention work is precarious, and that it is expected that 28 % of the population in Mexico will suffer some mental disorder during their lifetime.

They also indicate that 90 % of the population with a mental or psychiatric condition does not receive adequate treatment; and that only 10 % of the people who do receive treatment, take between 4 and 20 years to be treated correctly.

Lozano, Et. al., (2013), mention the following numerals: (1) It is estimated that worldwide people suffering from depression exceeded 300 million in 2015, most also have associated anxiety, a percentage estimated at around 4.4%, evidently the current pandemic situation increased the amount. (2) Depression is classified by the WHO as the mental illness that contributes most to the disability of the person, it is estimated to be 7.5% of all years lived with disability in 2015. (3) Anxiety disorders are the sixth most prevalent mental health disorder, with approximately 3.4 % (4) Depression is more frequent and common among women, estimated at 5.1 %, while in men it is 3.6 % (5) Prevalence rates of a mental disorder vary according to age, in adults it is estimated at more than 7.5 % in the 55-74 age group. (6) Depression also occurs in children and adolescents under 15 years of age, but was observed at a lower level than in older age groups. (7) The estimated number of people living with depression increased by 18.4 % between 2005 and 2015, reflecting population growth; it is expected that during and after the pandemic, the numbers will increase significantly in all age groups.

In the Mental Health Action Plan 2013-2020 developed by the World Health Organization (WHO, 2013), it is reported that the mental disorder associated with depression is 3.4 times more frequent in patients who have some pain condition; with diabetes it is 2.2 times more frequent and 2.8 times more likely to be present when it comes to obesity; in Mexico, the symptom of anxiety is 4.4 times greater when suffering from severe obesity (BMI 35+), compared to when having a medium obesity (BMI 30-34.9). Due to the above, the need to generate actions from 6 basic principles was determined, which are mentioned below: 1° Complete health coverage. 2. Attention to human rights. 3° Professional practice based on scientific evidence. 4° Emphasis on the life cycle. 5th Multisectoral approach. 6th Psychosocial strengthening of people with mental illness.

Related to the aforementioned principles, and as core issues in the action plan, emphasis is placed on (a) work on the elimination of stigma and discrimination against people with mental disorders and suicide attempts, (b) early prevention in mental health issues, specifically in disorders that develop in childhood, and (c) design of intervention programmes focused on adequate childhood development, as well as on the prevention of disorders associated with substance use (WHO, 2014). According to Carreño-García and Medina-Mora (2018), mental illnesses have an important impact on the quality of life of the population that suffers from them, affecting the course and treatment of other chronic degenerative diseases; however, despite their high prevalence among the population (12 % of the population between 18 and 65 years old), only a small proportion of patients with mental illness receive any treatment, which obviously affects their quality of life.

On the other hand, Piqueras-Rodríguez, Et. Al., (2018), mention that disorders such as depression, anxiety and somatic complaints are predominant in women, representing risk factors related to gender roles, disturbing situations or negative experiences, such as the high degree of gender violence to which they are exposed, socio-economic deprivation, low wages, income inequality, low or subordinate social status and rank, care of others, alcoholism, drug addiction, among others. Depression is much more frequent in women than in men, as well as presenting more severely and with greater comorbidities (Sandoval-Escurdia, 2018).

In terms of mental health prevention, three factors can help in the treatment of mental disorders, particularly depression: 1. Having sufficient autonomy and independence to control the behaviour associated with serious events; 2. Providing material and educational resources with a variety of options to choose from when a serious event occurs; 3. Carreño-García and Medina-Mora, (2018).

The objective of the present research was to identify the preferences of women as a target market around their mental health care needs, with the aim of having information that allows the design of a Marketing plan for the implementation, promotion and positioning of a Psychological Support Group.

Materials and methods

The present study is descriptive and quantitative in scope. It was based on the fact that the mental disorders that occur most frequently in the female population are depression and anxiety, and that they do not immediately seek the support and emotional containment provided by specialists in psychology or psychiatry, which is why there is interest in finding out the reasons for not seeking psychological care, their preference for services and the cost they are willing to pay for the service.

Population

Women aged 15 to 60 years belonging to socio-economic levels AB, C+ and C.

Design of the measuring instrument

For the search and collection of information a survey consisting of 10 questions was constructed, the application was carried out during the period from 2 to 18 September 2020 through the SurveyMonkey tool, the surveys were sent via WhatsApp link and email. The survey was used as a tool because it seeks descriptive and objective statistical data on the behaviour of the target market around the search for a psychological service.

The analysis of the results of the sample is carried out through the online portal surveyMonkey.com, which provides information, percentages and graphs of the answered surveys. The sample is a probability sample by convenience, with data according to INEGI, (2015), the calculation of the sample size is presented below in table 1:

Sample Calculation			Sample size calculation	
Population of León Gto	1,578,626	Residents	Population size	151,074
31.9 females between the ages of 15 and 60	503, 582	Females (15 to 60 years)	Confidence level (%)	95
Market Segment (30%)	**151,075**	Target market	Error margin (%)	10
AB: 5 %			**Sample size**	**96 surveys**
C+: 10 %				
C: 15 %				

Table 1 Sample size

Results and discussion

According to the Mexican Psychoanalytic Association (APM, 2020), one of the most frequently encountered obstacles is the stigma surrounding mental illness, who in addition to facing the complications of their condition, suffer from social, economic and occupational marginalisation; these factors give relevance to the present study, as it allows us to visualise what is off the radar of importance.

For the purposes of the study, a total of 160 surveys were sent out, of which only 113 were answered, the results of which are mentioned below: The survey consists of 10 items describing the consumer profile, 4 items are socio-demographic in nature, the remaining 6 questions are psychographic in nature designed to identify the lifestyle, interests and perceptions of the sample.

With the results obtained, it is a priority to emphasise what is mentioned by the Office of Scientific and Technological Information for the Congress of the Union (INCyTU, 2018), as a reference point for good mental health, recognising that people have a series of skills that allow them to overcome the daily stresses of life, to work productively and contribute to the community, having a favourable impact on the attitude of individuals, allowing them to achieve their objectives.

A.   Socio-demographic profile:

The question What is your age range? allows to identify the range in which the target market segment responding to the survey is located, was answered by 100 people. The results show that 8% of women are in the 15-20 age range, 26% between 21-30 years, 37% between 31-40 years, 20% between 41-50 years, 8% between 51-60 years, and only 1% between 61-70 years.

The question "What is your marital status?" was answered by 100 women, and the results obtained show that 48% of the sample is single, 33% married, 5% divorced, 1% widowed, while 13% said "other".

The question "What is your level of studies?" was answered by 100 of the respondents, and the results show that 54 % have a bachelor's degree; in second place, 23 % have a secondary school degree; in third place, 13 % have a high school degree, while 9 % have a postgraduate degree; 1 % of the respondents mentioned that they only have a primary school degree.

The next question: Do you have any work or paid activity? gives the percentage of the respondents who have some kind of work activity, which will allow them to have economic solvency to cover the cost of psychological treatment without depending on other people. The question was answered by 99 women, 84.85% work, while 15.15% do not have any work activity, with this result there is a window of opportunity to offer the service.

B.   Psychographic profile:

For the identification of the profile, 6 items were designed, the results are described, by question, below:

Do you currently attend any type of psychological help, the item was made to identify the opportunity for growth of the psychological support group; it was answered by 97 women, 14 of them stated that they attend psychological treatment, while 83 women indicated not receiving it; this represents in percentage, that 14.44 % of the sample that could use the service offered and 85.56 % do not attend at the moment, which represents an opportunity for growth in reference to the selected target market. An influential factor in the decision not to seek psychological treatment is the discrimination and stigma suffered by those suffering from a mental illness, whose families prevent them from seeking appropriate health services (INCyT, 2018).

What do you consider to be the emotional conflict that affects women the most, the question aims to identify which are the reasons that the interviewees identify as a priority and consequently, are the causes that would lead them to seek psychological support; the question was answered by 93 women, the answers that were issued are the basis of the marketing campaign, and will allow the direct approach to the satisfaction of the specific needs of the target market.

The results indicated that anxiety was the main cause for 50 of the respondents (50.51 %), secondly, low self-esteem for 13 of the women (13.13 %) and thirdly, sadness for 10 of the women interviewed (10.10 %), while the remaining 26.26 %, i.e. 20 of the respondents gave different answers. In addition to the situation of confinement resulting from the health contingency, according to WHO (2020), this will increase the levels of loneliness, depression, substance abuse and self-harm. On the other hand, the economic crisis caused by the pandemic led to the loss of jobs for a large number of people; from a gender perspective, it increased the burden of activities for women, both at home and at work (OAS 2020), as well as the risk of suffering episodes of violence, increasing the possibility of anxiety and depression.

The question What do you consider to be the reason for not seeking psychological help? This question aims to identify the barriers for which the potential client does not seek or does not seek an emotional or psychological service. The question was answered by 97 women; the results identify three main reasons why they avoid seeking the service, the first barrier with 31.63 % "I don't have money", the second with 26.53% "My problem is not so important", the third, with 13. 27 % "I don't have time"; these three reasons added together are 71.43 % of the total sample, because of the results obtained, the communication and marketing campaign should focus specifically on breaking these barriers, in order to generate an appropriate insight in the target population (vision, understanding, introduction).

The question is relevant because of the APM (2020), which reports that many patients with mental illness lack support networks in their social and family environment. The question "What type of therapist would I feel more comfortable with?" aims to identify whether the target market has a preference or would be more comfortable being seen by a male or female therapist. The item was answered by 100 respondents, the results obtained indicate that 67% of the women interviewed would feel more comfortable with a female therapist, while 33% would prefer to work with a male therapist; this question does not include the option "I am indifferent", as it is intended to be an unambiguous choice;

The results indicate that the marketing and communication campaign should focus on having female therapists to increase patient confidence and safety, to minimise risks and to avoid loss or diversion of the potential client. With the item: What age range do I consider to be the most suitable for a psychologist, the aim is to find and/or rule out the influence that the age of the therapist has when attending a client; that is, if the target market prefers a person with a certain age range, which would imply relating it to experience or choosing age as a synonym of energy or tiredness (Urdiales-Ibarra, 2015).

The question was answered by 100 women, according to the answers obtained, it is observed that 50% of the respondents do not have a preference for the age of the therapist, while the remaining population divides their opinion; 20% of the sample mentions preferring a therapist between 21 and 40 years old; another similar percentage for the selection of therapists between 41 to 50 years of age; while 6% of the sample selects an age range of 20 to 30 years; a minimal percentage, 4%, selects the option of therapists between 51 to 60 years of age. Based on these results, it is affirmed that age is not a significant parameter to stand out in the target market for decision making in the search for a psychological support service.

By what means would you seek psychological support, this question is of utmost importance, as it will allow to identify through which media a successful marketing campaign can be planned and carried out, generating a greater reach and impact on potential clients.

The question was answered by 100 women, the results indicate that 76 % of the target market would seek the service through a recommendation; only 9 % through social networks and the same percentage through other means; considering the results obtained, the campaign should impact a secondary client, which allows identifying other services that attend in the first instance to the target market; the referral or recommendation factor of the service should therefore be considered, an example of this would be the first contact doctors.

In this sense, Carreño-García and Medina-Mora, (2018), in terms of mental health prevention, show the existence of at least three factors that can help in the treatment of mental disorders, particularly depression: 1. Having sufficient autonomy and independence to control the behaviour associated with serious events; 2. Providing material and educational resources that have a variety of options to choose from when a serious event occurs; 3.

Conclusions

The opportunity for growth in the market of the city of León, Guanajuato for a psychology care group is very large. 86% of the target market is identified as an opportunity for growth, in real numbers, when compared with population data from the census, this percentage represents 84,014 potential clients in the city. However, significant barriers to attending mental illness care are identified as two phrases: "I don't have money" and "my problems are not so important"; in the literature it is mentioned that mental disorder is disabling at a labour and social level, so it is inferred that until a person presents a severe picture of anxiety and/or depression, is when they decide to seek emotional or medical-psychiatric support or containment; therefore, it becomes relevant and important to carry out a specific campaign through media, with educational messages and reflection around metal disease, anxiety, depression, etc. , with the aim of making the population aware of the consequences of not dealing with the situation that is causing them discomfort, informing them of the symptoms of the illness and the benefits of controlling and maintaining anxiety levels within a tolerable range. This will have a favourable and beneficial impact on mental health, avoiding the use of extra resources for taking medication, absenteeism from work or the presence of disabling illnesses.

The psychological support group that is proposed to be implemented should highlight as a competitive advantage that it will be a group specialised in treating anxiety in women, to ensure comfort and greater acceptance of the target market, advertising should be directed with the corporate image of a female therapist, since 67% of the market identifies with this type of profile, it is recommended to use an advertising image of a woman in an age range between 20 and 50 years.

A separate issue is that of indirect marketing, since according to the results it is observed that 76 % of the target market would seek the service through a recommendation and not through a direct means, therefore the use of social networks, a website, etc. is fundamental, It is also important to consider being open to recommendations from a third party, which is why one strategy could be to approach the first contact doctors, as they are the first to attend to the women in the selected target market, when they are consulted to solve the symptoms of anxiety, represented by tachycardia, choking sensation, rapid breathing, chest tightness, fear or panic, sweating, nausea, dizziness, etc.

Indirect marketing to physicians will be carried out alongside direct marketing to the target market in order to generate an impact at the same time. For indirect marketing, i.e. media, it is suggested to be carried out through print media for direct delivery to the doctor's office and with key messages shared on the Facebook and Instagram social networks of the first contact medical associations in the city.

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Instructions for Scientific, Technological and Innovation Publication

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General explanation of the subject and explain why it is important.

What is your added value with respect to other techniques?

Clearly focus each of its features

Clearly explain the problem to be solved and the central hypothesis.

Explanation of sections Article.

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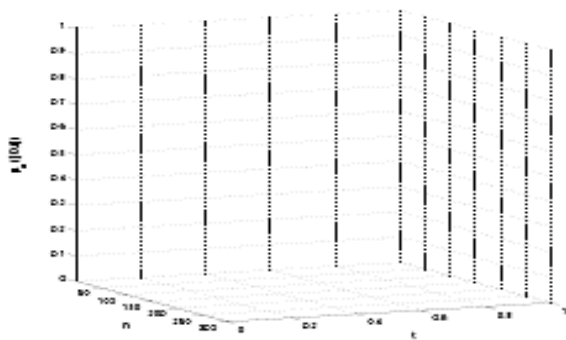
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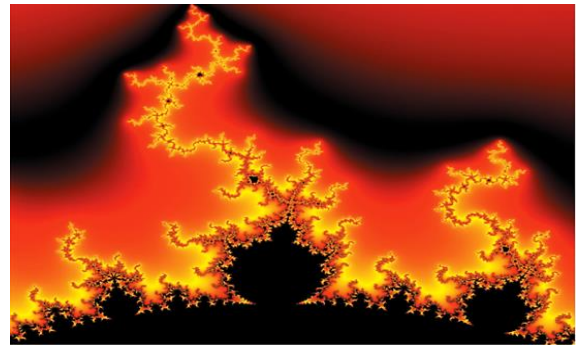
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