



Research in Management and Humanities

DWIJMH VOL. 5 NO. 2 (2026) ISSN: 2980-4817

Available online at www.dwijmh.org

Journal homepage: <http://www.dwijmh.org>

ORCID ID: <https://orcid.org/0000-0001-6884-3504>

Service quality and customer satisfaction in car care: A study of providers in Ilocos Norte

Verna D. Pagtama: Human Resources Manager, Astronic Multi Trade Corp; Graduate School of Business and Management, Divine Word College of Laoag, Laoag City, Ilocos Norte, Philippines.

ARTICLE INFO

Article history:

Received: March 25, 2026

Received in rev. form. April 20, 2026

Accepted: May 26, 2026

Published: June 10, 2026

Keywords: *Customer satisfaction, service offerings, car care service providers*

JEL Classification: M11

ABSTRACT

This study evaluated customer satisfaction with the service offerings of car care providers in Ilocos Norte, Philippines. Specifically, it identified the most commonly availed services, examined customer expectations and perceptions, assessed gaps between them, determined service-related challenges, and measured overall satisfaction. It also analyzed the relationships among expectations, perceptions, challenges, and customer satisfaction.

The study was grounded in established service quality and consumer behavior frameworks, including Expectancy–Disconfirmation Theory, Service Recovery and Justice Theory, Customer Experience and Service Process perspectives, Customer Satisfaction Theory, Customer relationship Management, the GAP Model of Service Quality, and the Kano Model.

A descriptive–correlational research design was employed using a survey questionnaire administered to 300 customers from two five-star car care service providers. Respondents were selected through convenience sampling. Data were analyzed using frequency, percentage, ranking, weighted mean, Spearman's rank correlation coefficient, and paired sample t-test with the aid of SPSS version 20.

Findings revealed that oil change services were the most frequently availed, while transmission pulldown services were the least utilized. Customers reported both high expectations and high perceptions of service quality, with no significant gaps between the two. Service-related challenges were generally rated as slightly serious, with wheel alignment services posing the most concerns. Overall, customer satisfaction was rated very high.

Correlation analysis showed no significant relationships among expectations, perceptions, challenges, and customer satisfaction across most services, except for selected areas such as oil changes, wheel alignment, diagnostic scanning, and electrical services.

The study concludes that five-star car care providers in Ilocos Norte effectively meet customer expectations and maintain high satisfaction levels despite minor operational challenges.

© 2026 by the authors. Published by Divine Word International Journal of Management and Humanities under the [Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License](https://creativecommons.org/licenses/by-nc-sa/4.0/) <https://creativecommons.org/licenses/by-nc-sa/4.0/>

Introduction

Customer satisfaction is widely recognized as a critical determinant of success in service-oriented industries, including the car care sector. In Ilocos Norte, the increasing number of vehicle owners has driven a growing demand for services such as oil changes, wheel alignment, air-conditioning maintenance, under-chassis work, diagnostic scanning, electrical repairs, and transmission servicing. Delivering these services requires not only technical expertise but also consistent quality, efficiency,

* Corresponding author. ORCID ID: 0000-0001-6884-3504

© 2026 by the authors. Hosting by DWIJMH. Peer review under responsibility of Divine Word International Journal of Management and Humanities.

Automobiles have become essential for daily mobility, particularly in provincial areas where transportation is vital for work, family responsibilities, and commerce. As vehicle ownership continues to rise, so does the demand for dependable maintenance and repair services. Prior research emphasizes that service quality plays a crucial role in fostering customer satisfaction and loyalty, especially in industries that support everyday needs (Zygiaris et al., 2022). In the car care industry, satisfaction is often influenced by factors such as the quality of repairs, the professionalism of service personnel, the timeliness of service, and the fairness of pricing. The American Society for Quality (2023) further notes that satisfied customers are more likely to return and recommend services, which is essential for the competitiveness of local businesses in Ilocos Norte.

Customer satisfaction occurs when service performance meets or exceeds customer expectations. In the car care context, trust and reliability are particularly important, as customers entrust service providers with their vehicles (Kotler & Keller, 2016). Moreover, feedback mechanisms serve as valuable tools for improving service delivery and strengthening customer relationships (Beard, 2014). Similarly, Boone and Kurtz (2013) highlight that customer satisfaction enhances customer retention and strengthens a firm's competitive position.

Previous studies have identified several determinants of satisfaction in car care services, including mechanic competence, service availability, and staff professionalism (Nguyen & Nguyen, 2018), as well as facility accessibility, service timeliness, and repair reliability (Raza et al., 2020).

Despite its importance, there is limited research focusing on customer satisfaction among car care service providers in Ilocos Norte. Existing studies in the Philippine context have primarily concentrated on customer satisfaction in the food, retail, and hospitality sectors (Alonso & Ocampo, 2019; Datu & Valenzuela, 2021). This gap highlights the need to examine customer satisfaction within the local car care industry, particularly by assessing customers' expectations and perceptions of service quality.

The researcher's professional background further supports the relevance of this study. Having previously served as a Service Sales Advisor at a five-star car care provider in Ilocos Norte and currently working as a Human Resource Manager, the researcher has firsthand experience in understanding customer behavior and service delivery challenges. These experiences, supported by training in product knowledge and service marketing, provide valuable insights that inform the study. Ultimately, this research aims to offer practical recommendations to enhance service quality and improve customer satisfaction in the car care industry.

Literature review

Car care service providers

Under the Department of Trade and Industry (DTI) Standard Classification for Automotive Services, car care service providers are grouped into different star categories. To ensure quality and safety, the DTI classifies car care service providers based on their level of authorization, size, and service capability. These classifications help customers in Ilocos Norte understand the types of services and the level of quality they can expect from a car care shop. The Five-Star Shops represent the highest level of accreditation. These shops are usually factory-authorized or franchised service centers. They are expected to adhere to strict standards for facilities, equipment, and technical skills. A Five-Star "A" Shop must have at least 21 working stalls. A Five-Star "B" Shop must have a maximum of 20 and a minimum of 11 working stalls. A Five-Star "C" Shop must have a minimum of 10 working stalls (DTI, 2025)

In Ilocos Norte, A Five Star "A" Shop is usually located in urban areas such as Laoag City, while A Five Star "B" Shop is common in growing commercial areas such as the City of Batac. While dealerships and authorized service providers are more common in cities, many customers in the province rely on independent shops and medium-sized service establishments. These businesses need to work harder to earn trust by demonstrating technical expertise, fairness, and consistent service quality. As noted by Zeithaml et al. (2018), today's customers are more informed and careful in selecting providers, often considering

not just pricing but also responsiveness, staff behavior, and reliability before choosing where to get services.

Car care service providers offer maintenance and repair services that help ensure vehicle safety, performance, longevity, and reliability. Regular servicing helps identify and rectify potential safety issues before they become serious problems. This includes checking brakes, tires, lights, and other critical components that contribute to vehicle safety. Servicing ensures that your car operates efficiently and reliably. Routine maintenance, such as oil changes, fluid top-ups, and filter replacements, prevents breakdowns and unexpected issues, keeping your car running smoothly. Effective services rely on skilled staff, systematic procedures, and appropriate technology (Gallega, 2025). Car care service providers have their own professional, preferred mechanics, as well as modern equipment and tools suited to the different services customers need. Studies also indicate that service providers that adopt innovation and technology in automotive services are better able to improve efficiency and enhance customer satisfaction (Quimba & Rosellon, 2010).

Services availed by customers

In the Philippines, vehicle owners commonly follow practical maintenance schedules such as regular oil changes, alignment checks after road impacts, periodic air-conditioning servicing, and diagnostic scanning during maintenance visits (Autodeal, 2023). Regular car services such as oil changes, wheel alignment, air-conditioning service, under-chassis jobs, diagnostic scanning, electrical service, and pull-down transmission service are important for keeping vehicles safe and in good working condition (Das et al., 2022).

Changing oil service is essential for maintaining engine performance and extending engine life because engine oil reduces friction, removes dirt, and helps control engine temperature. Regular oil changes prevent engine wear, overheating, and sludge buildup, which can lead to poor performance and costly engine repairs. Manufacturers and automotive experts recommend timely oil replacement to ensure smooth engine operation and better fuel efficiency (Delos Santos, 2021). Wheel alignment also plays a key role in safety and efficiency because hitting potholes or rough roads can cause misalignment, which results in uneven tire wear, poor handling, and lower fuel economy. Drivers are often advised to have their alignment checked when they feel a pull in the steering wheel or after a strong road impact (Das et al., 2022).

Air conditioning systems in vehicles play a pivotal role in ensuring passenger comfort and road safety. By maintaining optimal cabin temperatures, these systems reduce driver fatigue and enhance alertness, particularly under extreme weather conditions (Sachelarie et al., 2025). Car air-conditioning service ensures cooling performance. The primary function of the cooling system is to maintain the engine's temperature within an optimal range. When an engine operates at the right temperature, it burns fuel more efficiently. Keeping the cooling system in top shape helps ensure the engine runs efficiently, thus saving money on fuel in the long run. (Kim & Choi, 2018).

Under-chassis jobs are necessary for proper suspension, steering, and braking performance (Hassan & Jamil, 2020). According to experts, a well-maintained chassis enables cars to respond properly to steering inputs and road conditions. If the chassis is damaged or misaligned, it can throw off the car's suspension geometry. This leads to poor handling, delayed braking, and difficulty steering—especially during emergency maneuvers. In other words, with proper under-chassis maintenance, the risk of accidents diminishes.

Diagnostic scanning helps detect electronic faults in modern vehicles. A diagnostic scanner, also known as an OBD-II scanner or code reader, is a device used to interface with a car's On-Board Diagnostics (OBD) system. One of the main advantages of diagnostic scanners is their ability to quickly identify car problems. Instead of spending hours trying to pinpoint the issue through trial and error, a diagnostic scanner can retrieve the trouble codes almost instantly. This efficiency speeds up the repair process and minimizes downtime for your vehicle (Reyes, 2023)

Electrical services are important for vehicle safety and reliability because problems with the battery, wiring, alternator, or starter can lead to sudden breakdowns and power failure. Regular inspection and maintenance of the electrical system help prevent starting problems, warning light issues, and unexpected vehicle stoppage, which can affect driver safety and convenience (Delos Santos, 2021).

Finally, pull-down transmission service is necessary to check internal transmission components for wear, leaks, or damage, especially when drivers experience hard shifting, slipping gears, or unusual noises. Proper transmission inspection and servicing help ensure smooth gear operation, improve vehicle performance, and prevent costly transmission failure (Hassan & Jamil, 2020).

The gap between expectations and perceptions

The GAP Model of Service Quality (Parasuman et al., 1985) was used in this study. This service quality model is a framework that facilitates analysis of customer satisfaction and the identification of opportunities to improve the customer experience. This model can also help managers better understand customer expectations and needs. The framework is applicable in a variety of situations across a wide range of industries. Most companies and professions, whether sales- or service-focused, involve some component of customer service. There are five gaps that the framework addresses. Each gap is a difference between an expectation and a deliverable. In this study, the following gaps were considered:

Gap 3. The gap between service quality and service delivery. The gap between service quality and service delivery is the difference between management's service standards and the actual customer experience. In this situation, the manager understands the customer's expectations and communicates the expected standards to the customer service team. Although the team members understand the expected level of service quality, they do not provide service that meets management's standards.

Gap 5. The gap between expected service and experienced service. The gap between expected service and experienced service is the difference between the service quality a customer expects and their perception of the quality of service. In this situation, the management has successfully implemented the standard of service that their customers expect, and team members are delivering service that meets their quality standards. Although the customer receives the level of service that meets both the management's standards and overall customer expectations, the customer's own perceptions cause them to have a poor experience (Indeed Editorial Team, 2025)

Research indicates that customer expectations of automotive services often differ from their actual experiences. Using the SERVQUAL model, a study at Toyota Dasmariñas-Cavite found that dimensions like reliability and empathy had strong effects on customer satisfaction, but some customers felt these were not always delivered as expected the indicators of reliability on “*Promised time on service completion*” and empathy on “*Informing if there will changes in promised time*” had significant gap between customers’ expectations and perceptions (Torres & Consunji, 2021).

It was also noted that long waiting times, unclear communication, and delays in service completion often widen this gap. In this survey, car owners who were serviced were asked about their expectations and perceptions using the following criteria: additional costs/cost transparency, cleanliness and comfort of centers, convenience and location of centers, ease of obtaining an appointment, friendliness and service quality of staff, quality of work completed, and work completed on schedule (Autodeal, 2023).

Challenges encountered by customers

While many expect quick, reliable, and affordable service, customers frequently encounter challenges in availing the car care services. These are the long waiting times for the service, limited availability of equipment and skilled mechanics, lack of clear communication about service updates, and inaccurate service charge estimates that customers often face.

One of the most common issues is long waiting times or service delays, which makes customers dissatisfied and less likely to return. This finding is supported by Sharma and Kumar (2020), who noted that a shortage of trained technicians for specialized tasks, such as air conditioning (AC) repair, directly contributes to service delays and can lower overall customer trust. The primary challenge of long waiting times for internal component replacement aligns with Gallega (2025), who noted that vehicle reliability depends on skilled staff and systematic procedures, especially during complex repairs.

Another challenge is the limited availability of equipment such as advanced scanners or wheel alignment machines, especially in smaller service shops outside major cities (Ahmed & Ashraf, 2020). The most significant challenge aligns with the findings

of Mohanty et al. (2021), who highlighted that while modern diagnostic tools are essential for early problem detection, technical limitations can hinder the efficiency of the repair process. This aligns with the observations of Singh and Kapoor (2019), who suggested that integrating advanced diagnostic technology is a critical factor in building customer trust by reducing reliance on trial-and-error in maintenance.

Customers also encounter problems due to a shortage of trained technicians (Sharma & Kumar, 2020). The most prominent challenge, limited availability of preferred mechanics, highlights the importance of the human element, as Ahmed and Ashraf (2020) and Delos Santos (2021) emphasized that technician competence and personal rapport are essential for building trust.

In addition, many customers expect to be kept informed about the progress of the service, but instead feel left uninformed (Torres & Consunji, 2021). To address these technical delays, AutoDeal (2023) emphasized that regular updates on service duration are essential for bridging the gap between technical requirements and customer expectations, consistent with the customer-focused practices advocated by Ahmed and Ashraf (2020).

Finally, the need for transparency when these mechanical issues arise is supported by Lopez (2020), who argued that unclear estimates and unexpected service extensions are major sources of customer frustration. Furthermore, the recommendation to provide clear service estimates to improve confidence is corroborated by Reyes (2021) and Ali et al. (2020), who argued that transparent pricing and standard procedures are key to establishing trust.

Customer satisfaction

Customer satisfaction has long been established as a main factor in the success of service-oriented businesses. Kotler and Keller (2016) explained that satisfaction results when a customer's expectations are met or exceeded, while dissatisfaction occurs when performance falls short. In the auto care service industry, this idea is applicable because customers entrust service providers with their vehicles, which are often valuable and essential to daily living. When services are performed effectively, customers are more likely to return, remain loyal, and recommend the provider to others. But failure to meet expectations can result in negative impressions and loss of business.

In the auto care business, this could mean how customers feel after their cars are serviced, whether the job was done properly, the staff treated them well, and the price was fair. American Society for Quality (2023) emphasized that satisfied customers are more likely to return and recommend the service to others. Customer satisfaction is defined as the emotional response following a service experience (Qualtrics, 2023). In the car care service industry, satisfaction depends on convenience, affordability, and reliability of service completion.

Studies show that both the quality of the work and the way customers are treated affect customer satisfaction with car care services. Nguyen and Nguyen (2018) identified mechanics' competence, service availability, and staff professionalism as key factors affecting satisfaction. Likewise, Raza et al. (2020) found that factors such as the accessibility of facilities, the timeliness of service, and the reliability of repairs strongly determine how customers perceive value. These findings show that it's important to consider all parts of a service because customers care not just about the results but also about how they were treated and the overall experience.

Recent studies in automotive services highlight the same key dimensions of satisfaction: reliability, responsiveness, assurance, empathy, transparency, and use of proper tools and technology. Reliability refers to doing the job correctly and on time. Responsiveness means handling calls, updates, and requests promptly. Assurance reflects the confidence customers gain when mechanics and service advisors demonstrate competence. Empathy is about understanding the customer's needs and treating them with respect. When these are consistently practiced, greater satisfaction and loyalty follow (Zygiaris et al., 2022)

Doloroso (2019) determined overall after-sales customer satisfaction among vehicle owners in the Philippines. J.D. Power 2019 Philippines Customer Service Index (CSI) Study. He found that customer satisfaction involves encouraging appointment scheduling, promoting quick/express service, and keeping customers in the know from the start. In addition, Autodeal (2023) asked car owners who had recently had their vehicles serviced to rate their satisfaction upon completion. The criteria include:

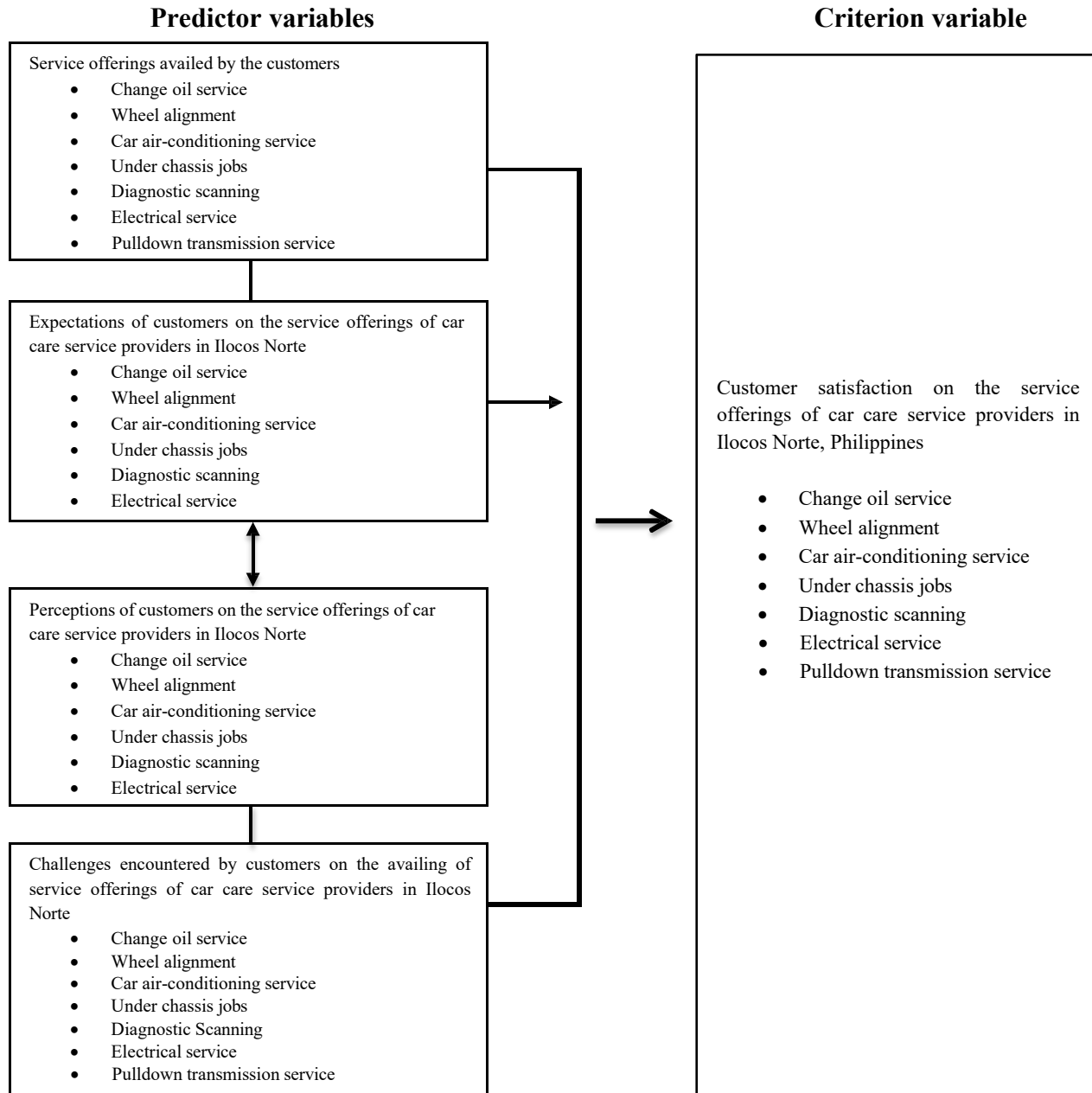
additional costs/cost transparency, cleanliness and comfort of centers, convenience and location of centers, ease of obtaining an appointment, friendliness and service quality of staff, quality of work completed, and work completed on schedule. For the top three aspects of car servicing in 2023, customers rated staff friendliness and quality the highest, with an average rating of 4.63 stars out of five. Next is the ease of obtaining an appointment, rated 4.6 stars out of five. Rounding out the top three is the facility's cleanliness, which averaged 4.48 out of five stars across multiple brands and dealers in the Philippines.

Trust also plays a major role in satisfaction. Ali et al. (2020) emphasized that customers are more willing to approve repairs and accept prices when they believe a workshop is honest and skilled. Trust develops when results are consistent and when proper parts, standard procedures, and clear documentation are used.

Transparent pricing is another critical factor. Reyes (2021) noted that unclear charges are a major source of complaints in the car care sector. Shops that provide written estimates, notify customers before performing extra work, and issue detailed receipts are rated higher in surveys. Industry reports in the Philippines confirm that pricing transparency and on-time completion are the main areas that need improvement (Autodeal, 2023).

Technology enhances customer satisfaction in two key ways. First, diagnostic tools enable faster, more accurate fault detection, reducing trial-and-error repairs and saving time (Reyes, 2023). Second, digital solutions such as online appointment booking and status updates make the process more convenient, especially for busy clients. Singh and Kapoor (2019) stressed that diagnostic scanners and modern equipment are vital in ensuring quality service.

Conceptual framework



Source: Author's own paradigm (2026)

Figure 1 illustrates the conceptual framework of the study. The independent variables consist of the service offerings availed by customers, customers' expectations and perceptions, the gap between expectations and perceptions, and the challenges encountered by customers in availing of car care services in Ilocos Norte. The service offerings include oil changes, wheel alignment, car air-conditioning service, under-chassis work, diagnostic scanning, electrical service, and pull-down transmission service. Customers' expectations refer to what they anticipate before availing the services, while perceptions refer to their actual experiences after the services are provided. The gap represents the difference between expected and perceived service quality. The framework also considers the challenges customers encounter, such as long service wait times, limited availability of equipment and skilled mechanics, a lack of clear communication about service updates, and inaccurate service charge estimates. The study's dependent variable is the level of customer satisfaction with car care providers' service offerings. Customer satisfaction refers to the overall feeling or evaluation customers have after availing of the services. The study further examines the relationship between customers' expectations, perceptions, and the challenges they encounter, and

Statement of the problem

This study determined the customer satisfaction with the service offerings of car care service providers in Ilocos Norte, Philippines.

Specifically, it sought to answer the following sub-questions:

1. What are the service offerings availed by the customers?
 - 1.1. Change oil service;
 - 1.2. Wheel alignment;
 - 1.3. Car air-conditioning service;
 - 1.4. Under chassis jobs;
 - 1.5. Diagnostic scanning;
 - 1.6. Electrical service; and
 - 1.7. Pulldown transmission service?
2. What are the expectations of customers on the service offerings of car care service providers in Ilocos Norte?
 - 2.1. Change oil service;
 - 2.2. Wheel alignment;
 - 2.3. Car air-conditioning service;
 - 2.4. Under chassis jobs;
 - 2.5. Diagnostic scanning;
 - 2.6. Electrical service; and
 - 2.7. Pulldown transmission service?
3. What are the perceptions of customers on the service offerings of car care service providers in Ilocos Norte?
 - 3.1. Change oil service;
 - 3.2. Wheel alignment;
 - 3.3. Car air-conditioning service;
 - 3.4. Under chassis jobs;
 - 3.5. Diagnostic scanning;
 - 3.6. Electrical services; and
 - 3.7. Pulldown transmission service?
4. What are the gaps between customer expectations and perceptions of the service offerings of car care providers in Ilocos Norte?
5. What is the degree of seriousness of the challenges encountered by customers in the service offerings of car care service providers in Ilocos Norte?
 - 5.1. Change oil service;
 - 5.2. Wheel alignment;
 - 5.3. Car air-conditioning service;
 - 5.4. Under chassis jobs;
 - 5.5. Diagnostic scanning;
 - 5.6. Electrical service; and
 - 5.7. Pulldown transmission service
6. What is the level of customer satisfaction with the service offerings of car care service providers in Ilocos Norte?
 - 6.1. Change oil service;
 - 6.2. Wheel alignment;
 - 6.3. Car air-conditioning service;

- 6.4. Under chassis jobs;
- 6.5. Diagnostic scanning;
- 6.6 Electrical service;
- 6.7 Pulldown transmission service?

- 7. Is there a significant relationship between customer expectations and their level of satisfaction with the service offerings of car care service providers in Ilocos Norte?
- 8. Is there a significant relationship between customer perceptions and their level of satisfaction with the service offerings of car care service providers in Ilocos Norte?
- 9. Is there any significant relationship between the challenges encountered by the customer and their level of satisfaction with the service offerings of car care service providers in Ilocos Norte?

Hypothesis

H_{a1}. There is no significant relationship between customer expectations and their level of satisfaction with the service offerings of car care service providers in Ilocos Norte, Philippines.

H_{a2}. There is no significant relationship between customer perceptions and their satisfaction with the service offerings of car care service providers in Ilocos Norte, Philippines.

H_{a3}. There is no significant relationship between the challenges customers encounter and their satisfaction with the service offerings of car care service providers in Ilocos Norte, Philippines.

H_{a4}. There is no gap between customers' expectations and perceptions of the service offerings of car care service providers in Ilocos Norte, Philippines.

Scope and limitations of the study

This study focused on determining the level of customer satisfaction with the services offered by car care providers in Ilocos Norte, Philippines. It examined the primary auto services commonly availed of by customers, namely oil change, wheel alignment, car air-conditioning, under-chassis jobs, diagnostic scanning, electrical service, and pull-down transmission service.

The study also examined customers' expectations and perceptions, the gap between them, and the challenges encountered when availing of the services. These variables were analyzed to better understand how customers evaluate their overall satisfaction with the service offerings.

Furthermore, the study explored the relationships between customers' expectations, perceptions, and the challenges they encountered, and their satisfaction with the services provided.

The respondents consisted of 300 customers who availed of the primary auto service during the study period and were willing to participate. Convenience sampling was used. The study was conducted from October to December 2025.

Research methodology

Research design

This study employed a descriptive-correlational research design using a survey questionnaire. This design was appropriate because it systematically described customer satisfaction on the service offerings of car care service providers in Ilocos Norte, Philippines, and examined relationships between service offerings, customer expectations and perceptions, gaps, challenges, and overall satisfaction.

The study was conducted in Ilocos Norte, Philippines, focusing on the two (2) 5-star car care service providers located in Laoag City and the City of Batac. These establishments were chosen for their compliance with quality standards and their role in providing maintenance and repair services to private and commercial vehicle owners in the province.

Population and sampling

The respondents consisted of 300 customers who availed of the primary auto service during the study period and were willing to participate. Convenience sampling was used. services

Data gathering procedure

Data were collected using a five-part survey questionnaire. The questionnaire was formulated by the researcher, and its items were drawn from various sources in the literature. The Cronbach's Alpha test was utilized to establish its validity and reliability. Part I gathered information on the service offerings availed of by customers, including oil change, wheel alignment, car air-conditioning, under-chassis jobs, diagnostic scanning, electrical service, and pull-down transmission service. This is a checklist. Parts II and III elicited expectations and perceptions on the service offerings of car care service providers. Part IV addressed the challenges customers encountered with car care providers' service offerings. Part V assessed customers' overall satisfaction with car care providers' service offerings.

Statistical treatment of data

Data were analyzed using descriptive statistics to determine satisfaction levels and inferential statistics to assess relationships between the independent variables (service offerings, expectations, perceptions, gaps, challenges) and the dependent variable (customer satisfaction).

Ethical considerations

The study adhered to the highest ethical standards to ensure the integrity of the research and the rights of every respondent. Informed consent was obtained before participation, with each respondent being aware of the purpose of the study, the procedures to be undertaken, confidentiality measures, and the right to withdraw at any time without penalty. Data gathered was treated with the utmost confidentiality, kept secure, and used solely for academic purposes.

Tools for data analysis

The collected data were analyzed using descriptive statistics to summarize responses through mean scores. Correlation analysis was then conducted to examine the relationships between expectations, perceptions, challenges, and overall customer satisfaction.

The following were used to analyze the mean ratings.

Customers' expectations and perceptions

Range of Mean Values	Descriptor	Descriptive Interpretation
4.51 - 5.00	Strongly Agree (SA)	Very High (VH)
3.51 - 4.50	Agree (A)	High (H)
2.51 - 3.50	Moderately Agree (MA)	Moderate (M)
1.51 - 2.50	Disagree (D)	Low (L)
1.00 - 1.50	Strongly Disagree (DA)	Very Low (VL)

Challenges encountered by the customers

Range of Mean Values	Descriptive Interpretation
4.51 - 5.00	Extremely Serious (ES)
3.51 - 4.50	Very Serious (VS)
2.51 - 3.50	Moderately Serious (MS)
1.51 - 2.50	Slightly Serious (SS)
1.00 - 1.50	Not Serious (NS)

Level of customers' satisfaction

Range of Mean Values	Descriptor	Descriptive Interpretation
4.51 - 5.00	Very Much Satisfied (VMS)	Very High (VH)
3.51 - 4.50	Very Satisfied (VS)	High (H)
2.51 - 3.50	Moderately Satisfied (MS)	Average (A)
1.51 - 2.50	Slightly Satisfied (SS)	Low (L)
1.00 - 1.50	Not Satisfied (NS)	Very Low (VL)

Data presentation and analysis

The data are presented in accordance with the problem statement. The study answered the following questions:

1. What are the service offerings availed by the customers?

- 1.1. Change oil service;
- 1.2. Wheel alignment;
- 1.3. Car air-conditioning service;
- 1.4. Under chassis jobs;
- 1.5. Diagnostic scanning;
- 1.6. Electrical service; and
- 1.7. Pulldown transmission service?

Table 1. Service offerings availed by the customers (n=300)

Service Offerings	Frequency	Percentage (%)	Rank
Change oil service	125	41.67	1
Wheel alignment	95	31.67	3
Car air-conditioning service	34	11.33	6
Under chassis jobs	108	36.00	2
Diagnostic scanning	42	14.00	5
Electrical service	69	23.00	4
Pulldown transmission service	32	10.67	7

Multiple Responses

Source: Author's own table (2026)

The results presented in Table 1 highlight the frequency and percentage of customers availing each service.

As can be gleaned from the table, among the services offered by the car care providers, the oil change service was the most availed of, with 125 respondents (41.67%). This indicates that customers place high importance on routine engine maintenance.

On the other hand, the least availed service was *the pull-down transmission service*, with 32 respondents (10.67%). This indicates that this service, often more specialized or costly, is typically sought only when specific problems arise.

The results indicate that customers predominantly avail routine and preventive maintenance services rather than specialized or major repairs.

2. What are the expectations of customers on the service offerings of car care service providers in Ilocos Norte?

- 2.1. Change oil service;
- 2.2. Wheel alignment;
- 2.3. Car air-conditioning service;
- 2.4. Under chassis jobs;
- 2.5. Diagnostic scanning;
- 2.6. Electrical service; and

Table 2. Expectations of customers on the service offerings of car care service providers (n = 300)

	Indicators	Mean	Descriptive Interpretation
A	Change oil service		
1	The oil change service is performed on time, per the job order.	4.18	High
2	The staff clearly explains the type and quality of oil to be used.	4.28	High
3	The equipment/tool used is modern and consistent with the service needed.	4.21	High
4	The staff knows my specific objectives regarding the oil change.	4.25	High
5	The staff gives preferential attention to other concerns, inquiries, and requests	4.28	High
6	The price of the change oil service is reasonable.	4.23	High
	Composite Mean	4.24	High
B	Wheel alignment		
1	The wheel alignment service is done on time according to the job order	4.19	High
2	The staff explains the type and quality of parts replaced and installed.	4.21	High
3	The equipment/tool used is modern and consistent with the service needed.	4.21	High
4	The staff knows my specific objectives for the wheel alignment.	4.16	High
5	The staff gives preferential attention to other concerns, inquiries, and requests	4.33	High
6	The price of the alignment service is reasonable.	4.23	High
	Composite Mean	4.22	High
C	Car air- conditioning service		
1	The car air-conditioning service is completed on time, according to the job order.	4.15	High
2	The staff explains the type and quality of parts replaced and installed.	4.21	High
3	The equipment/tool used is modern and consistent with the service needed.	4.09	High
4	The staff knows my specific objectives for the car air-conditioning service.	4.06	High
5	The staff gives preferential attention to other concerns, inquiries, and requests.	4.29	High
6	The cost of the air-conditioning service is reasonable.	4.06	High
	Composite Mean	4.14	High
D	Under chassis jobs		
1	The under-chassis jobs are completed on time, according to the job order.	4.06	High
2	The staff explains the type and quality of parts replaced and installed.	4.11	High
3	The equipment/tool used is modern and consistent with the service needed.	4.12	High
4	The staff knows my specific objectives for the under-chassis jobs.	4.12	High
5	The staff gives preferential attention to other concerns, inquiries, and requests.	4.09	High
6	The price of under-chassis jobs is reasonable.	4.06	High
	Composite Mean	4.09	High
E	Diagnostic scanning		
1	The diagnostic scanning is done on time according to the job order.	3.76	High
2	The staff clearly explains the results of the diagnostic scan.	3.79	High
3	The equipment/tool used is modern and consistent with the service needed.	3.76	High
4	The staff knows my specific objectives for the diagnostic scanning.	3.74	High
5	The staff gives preferential attention to other concerns, inquiries, and requests.	3.88	High

6	The price of the diagnostic scanning is reasonable.	3.74	High
Composite Mean		3.78	High
F	Electrical service		
1	The electrical service is completed on time, according to the job order.	4.16	High
2	The staff explains the type and quality of parts replaced and installed.	4.20	High
3	The equipment/tool used is modern and consistent with the service needed.	4.09	High
4	The staff knows my specific objectives for the electrical services.	4.07	High
5	The staff gives preferential attention to other concerns, inquiries, and requests.	4.28	High
6	The price of the electrical service is reasonable.	4.25	High
Composite Mean		4.18	High
G	Pulldown transmission service		
1	The pulldown transmission service is completed on time, according to the job order.	4.06	High
2	The staff explains the type and quality of parts replaced and installed.	3.97	High
3	The equipment used is modern and well-suited to the service required.	4.00	High
4	The staff knows my specific objectives for the pull-down transmission service.	4.16	High
5	The staff gives preferential attention to other concerns, inquiries, and requests.	4.13	High
6	The price of the pulldown transmission service is reasonable.	3.94	High
Composite Mean		4.04	High
Overall Mean		4.10	High

Source: Author's own table (2026)

The results in Table 2 highlight the standards and quality that customers expect for each service, providing insight into their priorities and guiding service providers to improve the delivery and effectiveness of their offerings. Customers' expectations across the different car care services were generally high, as indicated by the overall mean of 4.10, with composite means ranging from 3.79 to 4.24. This suggests that, in general, customers have strong positive expectations regarding the quality, timeliness, and effectiveness of the services provided. Customers expect services to be performed efficiently, using modern equipment, with staff demonstrating technical competence, attentiveness, and clear communication.

The highest expectation was observed for *oil change service*, with a composite mean of 4.24, described as *high*, indicating that customers place the greatest expectation on routine maintenance services being done accurately and on time.

The findings align with Gallega (2025), who highlighted that skilled staff, organized procedures, and systematic maintenance are fundamental to providing reliable vehicle service. The priority customers place on clear communication and attentive staff aligns with the work of Al-Zu'bi et al. (2022). Furthermore, the expectation for technicians to explain the quality of oil used is supported by Ahmed and Ashraf (2020)

On the other hand, the lowest expectation was recorded for *diagnostic scanning*, with a composite mean of 3.79, still described as *high*, suggesting that customers view this service as more specialized and expect greater clarity, accuracy, and professional attention during the process.

The findings are consistent with those of Singh and Kapoor (2019), who stated that diagnostic tools are vital for ensuring quality service and increasing customer confidence. The need for precise results is supported by Reyes (2023). Further, the expectation that staff understand specific objectives is consistent with Ahmed and Ashraf (2020). Finally, the focus on pricing aligns with the studies by Reyes (2021) and Autodeal (2023).

3. What are the perceptions of customers on the service offerings of car care service providers in Ilocos Norte?

- 3.1. Change oil service;
- 3.2. Wheel alignment;
- 3.3. Car air-conditioning service;
- 3.4. Under chassis jobs;
- 3.5. Diagnostic scanning;

3.6. Electrical service; and

3.7. Pulldown transmission service

Table 3. Perceptions of customers on the service offerings of car care service providers (n = 300)

	Indicators	Mean	Descriptive Interpretation
A	Change Oil Service		
1	The oil change service is performed on time, per the job order.	4.46	Very High
2	The staff clearly explains the type and quality of oil to be used.	4.71	Very High
3	The equipment/tool used is modern and consistent with the service needed.	4.29	High
4	The staff knows my specific objectives regarding the oil change.	4.27	High
5	The staff gives preferential attention to other concerns, inquiries, and requests	4.30	High
6	The price of the change oil service is reasonable.	4.24	High
	Composite Mean	4.38	High
B	Wheel Alignment		
1	The wheel alignment service is done on time according to the job order	4.14	High
2	The staff explains the type and quality of parts replaced and installed.	4.18	High
3	The equipment/tool used is modern and consistent with the service needed.	4.24	High
4	The staff knows my specific objectives for the wheel alignment.	4.07	High
5	The staff gives preferential attention to other concerns, inquiries, and requests	4.20	High
6	The price of the alignment service is reasonable.	3.93	High
	Composite Mean	4.13	High
C	Car Air- Conditioning Service		
1	The car air-conditioning service is done on time according to the job order.	4.26	High
2	The staff explains the type and quality of parts replaced and installed.	4.03	High
3	The equipment/tool used is modern and consistent with the service needed.	4.09	High
4	The staff knows my specific objectives for the car air-conditioning service.	4.03	High
5	The staff gives preferential attention to other concerns, inquiries, and requests.	4.06	High
6	The cost of the air-conditioning service is reasonable.	3.74	High
	Composite Mean	4.04	High
D	Under Chassis Jobs		
1	The under-chassis work is completed on time, in accordance with the job order.	4.30	High
2	The staff explains the type and quality of parts replaced and installed.	4.23	High
3	The equipment/tool used is modern and consistent with the service needed.	4.28	High
4	The staff knows my specific objectives for the under-chassis jobs.	4.13	High
5	The staff gives preferential attention to other concerns, inquiries, and requests.	4.15	High
6	The price of under-chassis jobs is reasonable.	3.96	High
	Composite Mean	4.18	High
E	Diagnostic Scanning		
1	The diagnostic scanning is completed on time, in accordance with the job order.	4.02	High
2	The staff clearly explains the results of the diagnostic scan.	3.98	High
3	The equipment/tool used is modern and consistent with the service needed.	4.05	High
4	The staff knows my specific objectives for the diagnostic scanning.	3.98	High
5	The staff gives preferential attention to other concerns, inquiries, and requests.	4.07	High
6	The price of the diagnostic scanning is reasonable.	3.95	High
	Composite Mean	4.01	High
F	Electrical Service		
1	The electrical service is completed on time, per the job order.	4.33	High
2	The staff explains the type and quality of parts replaced and installed.	4.29	High
3	The equipment/tool used is modern and consistent with the service needed.	4.22	High

4	The staff knows my specific objectives for the electrical services.	4.14	High
5	The staff gives preferential attention to other concerns, inquiries, and requests.	4.26	High
6	The price of the electrical service is reasonable.	4.10	High
Composite Mean		4.22	High
G	Pulldown Transmission Service		
1	The pulldown transmission service is completed on time, according to the job order.	4.25	High
2	The staff explains the type and quality of parts replaced and installed.	4.09	High
3	The equipment used is modern and well-suited to the service required.	4.13	High
4	The staff knows my specific objectives for the pull-down transmission service.	3.97	High
5	The staff gives preferential attention to other concerns, inquiries, and requests.	4.03	High
6	The price of the pulldown transmission service is reasonable.	3.75	High
Composite Mean		4.04	High
Overall Mean		4.14	High

Source: Author's own table (2026)

Table 3 presents customers' perceptions of the service offerings of car care service providers. Customers' perceptions of the services received were also rated highly, with an overall mean of 4.14 and composite means ranging from 4.01 to 4.38. This result suggests that customers generally view the services rendered as efficient, reliable, and professionally delivered across all types of car care services. The high overall mean reflects a favorable evaluation of actual service performance rather than expectations alone.

The highest perceived service performance was noted for the change-oil service, with a composite mean of 4.38, indicating that customers perceive this service as the most consistently well-performed.

The results are in agreement with Gallega (2025), who stated that organized procedures and systematic maintenance contribute significantly to vehicle reliability. Delos Santos (2021) noted that timely oil replacement ensures smooth engine operation and fuel efficiency. Furthermore, the appreciation for clear communication and timely completion is consistent with Balinado et al. (2021), who found that perceptions improve when service advisors communicate clearly and vehicles are returned on schedule. Finally, Reyes (2021) holds the positive view that clear estimates and detailed receipts reduced customer complaints.

Meanwhile, the lowest perception was registered for *diagnostic scanning*, with a composite mean of 4.01, still interpreted as high, reflecting the service as accurate and dependable, despite its technical complexity.

This finding supports the conclusions of Kim and Choi (2018), who reported that accurate fault detection is a critical reason for positive ratings. The view of technical reliability is further supported by Ahmed and Ashraf (2020). Furthermore, the perception of accuracy aligns with Quimba and Rosellon's (2010) assertion that innovation in service processes improves quality. Finally, the need for a better understanding of outcomes is consistent with Ali et al. (2020), who found that customers readily accept prices when they believe a workshop is honest and proficient.

4. What are the gaps between customer expectations and perceptions of the service offerings of car care providers in Ilocos Norte?

Table 4. T-test results comparing customer expectations and perceptions of car care service offerings (n=300)

Service Offerings Available	Expectation (Mean)	Perception (Mean)	Mean Difference	t-value	Sig.
Change Oil Service	4.24	4.38	-.14	-1.532	.128
Wheel Alignment	4.22	4.13	.09	1.355	.179
Car air-conditioning service	4.14	4.04	.10	.842	.406

Under chassis jobs	4.09	4.18	-.09	-1.150	.253
Diagnostic scanning	3.79	4.01	-.22	-1.871	.068
Electrical services	4.18	4.22	-.04	-.588	.559
Pulldown transmission service	4.04	4.04	.00	.030	.976

Source: Author's own table (2026)

Table 4 presents the results of the paired sample t-test analyzing the gap between customers' expectations and perceptions of the services offered by car care service providers in Ilocos Norte. The results revealed no significant gap between customer expectations and perceptions across all service offerings, as all computed p-values were greater than 0.05. This indicates that customers' actual service experiences generally align with their expectations for services such as changing oil, wheel alignment, car air-conditioning service, under-chassis jobs, diagnostic scanning, electrical services, and pull-down transmission service. The findings suggest that car care service providers consistently meet customer expectations, reflecting reliable, professional service delivery that supports customer trust and satisfaction. The highest composite mean is *change oil service* with an expectation mean of 4.24 and a perception mean of 4.38, resulting in a mean difference of -0.14. The computed *t-value* of 0.128 indicates that the difference is not statistically significant. This suggests that customers are satisfied with the actual delivery because the service closely matches their expectations.

The alignment between service performance and customer expectations for oil change service follows Gallega (2025), who highlighted that organized procedures and systematic maintenance are fundamental to providing reliable vehicle service. The findings resonate with Al-Zu'bi et al. (2022), who identified service reliability and competence as primary drivers in ensuring that actual experiences match customer expectations. Furthermore, the results are supported by Ahmed and Ashraf (2020), who demonstrated that technical competence minimizes the gap between expectation and perception, while the lack of a significant difference implies that providers are successfully meeting the quality and standards identified by Balinado et al. (2021) as essential for fulfilling customer expectations.

Conversely, the lowest composite mean is *diagnostic scanning*, with an expectation mean of 3.79 and a perception mean of 4.01, resulting in a mean difference of -0.22. Although the lowest among the services, the *t-value* of 0.068 still indicates no significant difference between expectations and perceptions. This suggests that customers still perceive diagnostic scanning services as meeting or slightly exceeding their expectations.

The results are consistent with Kim and Choi (2018), who highlighted that accurate fault detection is a critical factor in customers' positive ratings of their experiences. As noted by Ahmed and Ashraf (2020), service centers are effectively addressing customer needs through technical competence and professional delivery. Furthermore, Reyes (2023) and Singh and Kapoor (2019) identified that the effective use of diagnostic tools prevents repeat visits.

H_{a4} is accepted because all computed *t-values* exceed the 0.05 significance level. This indicates that customers' actual service experiences generally align with their expectations.

5. What is the degree of seriousness of the challenges encountered by customers on the services availed of by car care service providers in Ilocos Norte?

- 5.1. Change oil service;
- 5.2. Wheel alignment;
- 5.3. Car air-conditioning service;
- 5.4. Under chassis jobs;
- 5.5. Diagnostic scanning;
- 5.6. Electrical service; and
- 5.7. Pulldown transmission service?

Table 5. Degree of seriousness of the challenges encountered by the customers on the service offerings of car care

	Indicators	Mean	Descriptive Interpretation
A	Change oil service		
1	Long waiting time for the service due to mechanical issues before the oil change.	1.98	SS
2	Limited availability of equipment, such as jacks, jack stands, and ramps.	2.02	SS
3	Limited availability of a preferred mechanic.	2.19	SS
4	Lack of clear communication on the required periodic maintenance schedule (PMS) for engine oil, oil filter, and drain plug water.	2.05	SS
5	Inaccurate service charge estimates on oil requirement as to engine size and diesel engine calibration, if needed.	2.01	SS
	Composite Mean	2.05	SS
B	Wheel alignment		
1	Long waiting time for the service if the preferred mechanic finds worn-out components that may need to be ordered and replaced before the alignment can be finished.	2.45	SS
2	Limited availability of hydraulic lifts and caster camber gauge.	2.33	SS
3	Limited availability of a preferred mechanic.	2.46	SS
4	Lack of clear communication on the required periodic maintenance schedule (PMS) of at least once a year.	2.28	SS
5	Inaccurate service charge estimates on standard four-wheel alignment, based on the vehicle type and additional repairs, if needed.	2.33	SS
	Composite Mean	2.37	SS
C	Car air- conditioning service		
1	Long waiting time for the service in case of replacement of the compressor, suction hose, expansion valve, filter drier/evaporator, and thermostat.	2.35	SS
2	Limited availability of gauge set, vacuum pump, and refrigerant, among others.	2.00	SS
3	Limited availability of a preferred mechanic.	2.38	SS
4	Lack of clear communication on the required maintenance schedule (PMS) for cleaning or replacement of the compressor, filter, and hose.	2.06	SS
5	Inaccurate service charge estimates for repairs of the compressor, filter, and hoses.	2.06	SS
	Composite Mean	2.17	SS
D	Under chassis jobs		
1	Long waiting time for service when replacing worn-out parts such as the hose, pump, and gear.	2.10	SS
2	Limited availability of car lift/jack, jack stands, and creeper.	2.00	SS
3	Limited availability of a preferred mechanic.	2.09	SS
4	Lack of clear communication on the periodic maintenance schedule (PMS) on suspension, steering, and braking systems.	1.86	SS
5	Inaccurate service charge estimates on labor, parts, diagnostics, and any other associated fees.	1.96	SS
	Composite Mean	2.00	SS
E	Diagnostic scanning		
1	Long waiting times for the service due to high volume of work, complex or multiple-vehicle issues, and incompatible scanning equipment.	2.05	SS
2	Limited availability of the On-Board Diagnostics (OBD) system.	1.93	SS
3	Limited availability of a preferred mechanic.	2.02	SS

4	Lack of clear communication on the required periodic maintenance schedule (PMS) on a semi-annual or quarterly basis, depending on the usage and vehicle age.	1.83	SS
5	Inaccurate service charge estimates are standard, depending on the severity of the car problems.	1.90	SS
Composite Mean		1.95	SS
F	Electrical service		
1	Long waiting time for the diagnosis and repair of the battery, alternator, and starter system.	1.97	SS
2	Limited availability of multi-meters, scan tools, hand tools, and consumables.	1.90	SS
3	Limited availability of a preferred mechanic.	2.04	SS
4	Lack of clear communication on the required periodic maintenance schedule (PMS) of the electrical system every 2 (two) years or 30,000-mile check-up, whichever is earlier.	1.94	SS
5	Inaccurate service charge estimates for battery checks/ cleaning, replacement of a fuse, or repairing a window, and for full wiring harness replacement.	1.96	SS
Composite Mean		1.96	SS
G	Pulldown transmission service		
1	Long waiting time for the replacement of worn or damaged internal components.	2.31	SS
2	Limited availability of diagnostic scanner, transmission jack, and jack stands.	2.06	SS
3	Limited availability of a preferred mechanic.	2.19	SS
4	Lack of clear communication on the required periodic maintenance schedule (PMS) for manual or automatic transmission, depending on the fluid type.	1.88	SS
5	Inaccurate service charge estimates on labor, parts, diagnostics, and any other associated fees.	2.09	SS
Composite Mean		2.11	SS
Overall Mean		2.04	SS

Source: Author's own table (2026)

Table 5 presents the severity of the challenges encountered by customers of car care services. The results reveal that the challenges encountered across all services were generally rated as *slightly serious*, with an overall mean of 2.09 and composite means ranging from 1.95 to 2.27. This result indicates that customers experience challenges in availing car care services, but these challenges are not perceived as severe or critical.

The highest composite mean of 2.37, interpreted as *slightly serious*, was reported for *wheel alignment*, indicating that customers perceive more noticeable challenges than for other car care services, particularly regarding waiting time and the availability of a preferred mechanic.

This highlights issues of service delays and a lack of updates, which Torres and Consunji (2021) identified as a primary gap where customer perceptions often fall short of expectations. Sharma and Kumar (2020) noted that the technical complexity of this service leads to a shortage of trained technicians for specialized tasks, resulting in longer waiting times. According to Mohanty et al. (2021), to mitigate these hurdles, the use of modern diagnostic tools is essential for early problem detection and for reducing trial-and-error delays.

In contrast, the lowest composite mean of 1.95, interpreted as *slightly serious*, was observed for *diagnostic scanning*, suggesting that customers perceive minimal challenges while availing of this service.

The most significant challenge reflects the findings of Mohanty et al. (2021), who highlighted that while modern diagnostic tools are essential for early problem detection, technical limitations can hinder the efficiency of the repair process. This aligns with the observation by Singh and Kapoor (2019), who suggested that integrating advanced technology is a critical factor in

building customer trust by reducing reliance on trial-and-error in maintenance. Furthermore, Reyes (2023) and Ali et al. (2020) noted that clear communication and standard procedures are vital for establishing honesty and maintaining customer confidence.

6. What is the level of customer satisfaction with the service offerings of car care service providers in Ilocos Norte?

- 6.1. Change oil service;
- 6.2. Wheel alignment;
- 6.3. Car air-conditioning service;
- 6.4. Under chassis jobs;
- 6.5. Diagnostic scanning;
- 6.6 Electrical service;
- 6.7 Pulldown transmission service?

Table 6. Level of customer satisfaction with the service offerings of car care service providers (n = 300)

Indicators		Mean	Descriptive Interpretation
1	Change oil service	4.35	VS
2	Wheel alignment	4.04	VS
3	Car air-conditioning service	4.12	VS
4	Under chassis job	4.16	VS
5	Diagnostic scanning	3.96	VS
6	Electrical service	4.13	VS
7	Pulldown transmission service	4.28	VS
Overall Mean		4.14	VS

Source: Author's own table (2026)

Table 6 presents customers' satisfaction with the services offered by car care service providers. The results show that, in general, customers are very satisfied with the car care services, as reflected in an overall mean of 4.14. The mean satisfaction ratings across the different service offerings range from 3.96 to 4.35, all of which are described as *very satisfied*, indicating consistently positive customer experiences across services.

The highest level of satisfaction was recorded for the *oil change service*, with a composite mean of 4.35, suggesting that customers are most satisfied with this service due to its efficiency and routine nature. The fact that changing oil service achieved the highest satisfaction levels supports the assertions of Ahmed and Ashraf (2020), who suggested that routine, efficient, and well-executed service practices are fundamental to meeting client expectations.

Meanwhile, the lowest level of satisfaction was noted for *diagnostic scanning*, with a mean of 3.96, still interpreted as very satisfied, indicating that customers generally appreciate the service despite its technical complexity.

This is consistent with the perspectives of Quimba and Rosellon (2010) and Singh and Kapoor (2019), who emphasized that modern diagnostic tools and innovation improve service quality by reducing trial-and-error repairs.

7. Is there a significant relationship between customer expectations and their level of satisfaction with the service offerings of car care service providers in Ilocos Norte?

Table 7. Relationship between customers' expectations and their level of satisfaction with the service offerings of car care service providers (n=300)

Customer Expectations		Level of Satisfaction
Change oil service	P	.112
	Sig- (2-tailed)	.214
Wheel alignment	P	.148

	Sig- (2-tailed	.152
Car air-conditioning	P	.273
service	Sig- (2-tailed	.118
	P	-.008
Under chassis jobs	Sig- (2-tailed	.993
	P	.245
Diagnostic scanning	Sig- (2-tailed	.118
	P	.481**
Electrical service	Sig- (2-tailed	.000
Pulldown transmission	P	-.012
service	Sig- (2-tailed	.949

**Significant at the 0.01 level (2-tailed)

Source: Author's own table (2026)

Source: Author's own table (2026)

Table 7 shows the relationship between customers' expectations and their satisfaction with the service offerings of car care service providers.

The Spearman's rho analysis revealed that, generally, there is no statistically significant relationship between customer expectations and satisfaction for most service offerings. The only exception was *electrical service*, which showed a significant positive relationship between expectations and satisfaction, with a rho value of 0.481 and a p-value of 0.000. This suggests that for electrical services, higher expectations are associated with higher satisfaction, while for other services, satisfaction appears to be influenced by factors beyond initial expectations.

This result is consistent with Al-Zu'bi et al. (2022), who emphasized that service quality dimensions such as reliability and assurance primarily drive customer satisfaction, regardless of initial expectations. For routine services, the absence of a significant relationship between expectations and satisfaction aligns with the observations of Balinado et al. (2021) and Hassan and Jamil (2020), who highlighted that satisfaction is mainly determined by clear communication, timely service completion, and confirmation of functional repairs, which tend to meet customer needs consistently and leave little variation between expectations and outcomes. Similarly, Ahmed and Ashraf (2020) and Delos Santos (2021) found that technician competence and professional expertise are the primary determinants of customer trust and satisfaction. Kim and Choi (2018) also emphasized accurate fault diagnosis as the critical factor influencing positive evaluations.

H_{a1} is accepted for most service offerings. The only exception is *electrical service*, which is rejected because it showed a significant positive relationship.

8. Is there a significant relationship between customer perceptions and their level of satisfaction with the service offerings of car care service providers in Ilocos Norte?

Table 8. Relationship between customers' perceptions and their level of satisfaction with the service offerings of car care service providers (n=300)

Customer Perception		Level of Satisfaction
Change oil service	r	.162
	Sig- (2-tailed	.071
Wheel alignment	r	.173
	Sig- (2-tailed	.094
Car air-conditioning	P	.324
service	Sig- (2-tailed	.061
Under chassis jobs	r	.158
	Sig- (2-tailed	.103

Diagnostic scanning	P	.351*
	Sig- (2-tailed	.023
Electrical service	P	.516**
	Sig- (2-tailed	.000
Pulldown transmission service	P	-.129
	Sig- (2-tailed	.481

**Significant at the 0.01 level (2-tailed)

*Significant at the 0.05 level (2-tailed)

Source: Author's own table (2026)

The results indicate that there is generally no statistically significant relationship between *customer perception* and *satisfaction* across most car care services. This means that satisfaction for most services is determined more by service outcomes than by customer perceptions. However, *diagnostic scanning* ($p=0.351$, $p=0.023$) and *electrical services* ($p=0.516$, $p=0.000$) exhibit statistically significant relationships, indicating that customer satisfaction in these services is influenced by how customers perceive service performance.

The finding is supported by Gallega (2025), who emphasized that systematic procedures and organized maintenance are the primary foundations of vehicle reliability. Furthermore, the focus on technical results over perception mirrors the assertions of Quimba and Rosellon (2010) regarding the role of innovation and appropriate technology in driving service excellence. Because these services are technically intensive, the reliance on outcomes aligns with the professional mastery identified by Ahmed and Ashraf (2020) as a core requirement for maintenance workshops.

In contrast, diagnostic scanning and electrical service exhibit statistically significant positive relationships, indicating that as customers perceive higher technical competence, their satisfaction increases. This direct link is consistent with the research of Singh and Kapoor (2019), who found that the use of specialized diagnostic tools builds customer confidence by providing accurate fault detection and reducing trial-and-error repairs.

H₂ is accepted for most service offerings. The only exceptions are *diagnostic scanning* and *electrical service*, which are rejected because they showed a significant positive relationship.

9. Is there any significant relationship between the challenges encountered by the customer and their level of satisfaction with the service offerings of car care service providers in Ilocos Norte?

Table 9. Relationship between the challenges encountered by the customers and their level of satisfaction with the service offerings of car care service providers (n=300)

Customer Expectations		Level of Satisfaction
Change oil service	P	-.385**
	Sig- (2-tailed	.000
Wheel alignment	P	-.319**
	Sig- (2-tailed	.002
Car air-conditioning service	P	-.147
	Sig- (2-tailed	.406
Under chassis jobs	P	.118
	Sig- (2-tailed	.224
Diagnostic scanning	P	-.132
	Sig- (2-tailed	.404
Electrical service	P	-.126
	Sig- (2-tailed	.303
Pulldown transmission service	P	.217
	Sig- (2-tailed	.233

**Significant at the 0.01 level (2-tailed)

*Significant at the 0.05 level (2-tailed)

Source: Author's own table (2026)

Table 9 presents the relationship between the degree of seriousness of the challenges encountered and customer satisfaction for each car care service.

The results indicate that there is generally no statistically significant relationship between the *seriousness of the challenges encountered and satisfaction with* most car care services. However, *change oil service* ($p=0.385$, $p=0.000$) and *wheel alignment* ($p=0.319$, $p=0.002$) exhibit a statistically significant negative relationship, indicating that greater challenge seriousness is associated with lower customer satisfaction in these services. This indicates that customers prioritize the final service outcome and effectiveness over minor operational difficulties.

This results-oriented perspective is supported by Gallega (2025), who asserts that systematic procedures are the primary foundations of vehicle reliability. Furthermore, for technically demanding tasks like transmission or electrical work, the stable satisfaction despite challenges mirrors the findings of Ahmed and Ashraf (2020), who identified technician competence and professional mastery as the fundamental drivers of trust.

In contrast, change oil service and wheel alignment show a statistically significant negative relationship, meaning that greater challenge severity, such as service delays or personnel limitations, is associated with lower customer satisfaction. This suggests that for these routine maintenance services, operational efficiency and timeliness are critical. This aligns with the research of Al-Zu'bi et al. (2022), who emphasized that reliability, defined as doing the job correctly and on time, is a core predictor of approval. Additionally, Hassan and Jamil (2020) highlighted that timely job completion and functional performance are essential for maintaining positive customer perceptions.

H_{a3} is accepted for most service offerings. The only exceptions are “Change Oil Service” and “Wheel Alignment,” which are rejected because they showed a significant negative relationship.

Results and discussion

Customer satisfaction with car care service providers in Ilocos Norte, Philippines, is influenced by customers' expectations and perceptions, as well as the challenges they encounter when availing of the services. The findings support the Expectancy–Disconfirmation Theory (Oliver, 1993), which holds that satisfaction results from comparing expectations with actual performance. When service performance meets or exceeds expectations, customers are satisfied; when it falls below expectations, they become dissatisfied. This perspective is consistent with the explanation of customer satisfaction presented by Hill et al. (2006) and Farris et al. (2010), which states that satisfaction results from the comparison between what customers expect and what they actually receive from the service provider.

The findings also show that the service process and the interaction between customers and service personnel play a significant role in shaping satisfaction. This observation is consistent with the Customer Experience perspective (Carbone, 1994) and the Service Process Lens (Bettencourt et al., 2014), which emphasize that satisfaction is influenced by the entire service experience from the beginning of the transaction until the completion of the service. Similarly, the results also support the concept of Customer relationship Management (Berry, 1983), which highlights the importance of trust, communication, and consistent service in maintaining long-term customer relationships. Previous studies also emphasized that building strong customer relationships improves satisfaction and loyalty (Al-Madani, 2013; Shaon & Raman, 2015; Villegas & Blanco, 2022).

The significance of the study lies in its contribution to the understanding of customer satisfaction in the automotive service sector, particularly among car care service providers in Ilocos Norte. The results highlight the importance of managing service quality, addressing service gaps, and improving service recovery strategies when problems arise. This supports the concepts presented in the GAP Model of Service Quality (Parasuraman et al., 1985), which explains that the gap between expected and perceived service can affect customer satisfaction. In addition, the results also relate to the Service Recovery and Justice

Theory of Maxham and Netemeyer (2002), which emphasizes that fair and respectful handling of service problems can restore customer confidence. The findings also support the Kano Model of Customer Satisfaction (Kano, 1980) and its recent applications in service improvement (Chen et al., 2020), which explain that different service attributes influence satisfaction in different ways.

This study was limited to customer satisfaction with the service offerings of car care service providers in Ilocos Norte, Philippines, with a particular focus on oil change, wheel alignment, car air conditioning, under-chassis jobs, diagnostic scanning, electrical services, and pull-down transmission services. The respondents were limited to 300 customers who availed the services from two (2) 5-Star car care service providers in Ilocos Norte using convenience sampling during the period October to December 2025. The study also examined customers' expectations and perceptions, the gaps between them, and the challenges encountered when availing of the services. Exploring this further could help provide a deeper understanding of how customer expectations, perceptions, and service challenges influence overall satisfaction in car care service providers.

Conclusion

The study found that oil change services were the most availed. Customers reported high expectations and perceptions of service quality and were generally very satisfied, while the challenges encountered were only slightly serious. Results further indicated that there was generally no significant relationship between customer expectations and satisfaction across most services, except for electrical services, where a significant relationship was found. Similarly, no significant relationship was observed between customer perceptions and satisfaction in most services, except in diagnostic scanning and electrical services. The relationship between encountered challenges and customer satisfaction was also not significant in most services, except for oil change and wheel alignment, where significant negative relationships were identified. Moreover, no significant gap was found between customer expectations and perceptions. Overall, these findings highlight the importance of maintaining consistent service quality, improving staff scheduling, ensuring clear customer communication, and providing continuous technical training to sustain high customer satisfaction among car care providers in Ilocos Norte.

Authors' contribution: Conceptualization, research methodology, data gathering, analysis, and editing were done by the author.

Conflict of interest statement: The author declares no conflict of interest.

Ethical review statement: The study adhered to ethical standards for research. It has no human-sensitive issues.

Funding: The study is funded by the author.

References

- Ahmed, S., & Ashraf, M. (2020). Equipment availability and service quality in automotive workshops. *International Journal of Automotive Technology and Management*, 20(3), 215–229.
- Ali, F., Rasoolimanesh, S. M., Sarstedt, M., Ringle, C. M., & Ryu, K. (2020). The impact of perceived value on customer satisfaction and loyalty in automotive services. *Journal of Retailing and Consumer Services*, 52, 101–112.
- Alonso, A. D., & Ocampo, L. (2019). Service quality and customer satisfaction in Philippine retail businesses. *Asia-Pacific Journal of Business Administration*, 11(2), 145–160.
- Al-Zu'bi, Z., Al-Lozi, M., & Dahiyat, S. (2022). The impact of service quality dimensions on customer satisfaction. *International Journal of Academic Research in Business and Social Sciences*, 12(11), 1499–1509. <https://doi.org/10.6007/IJARBS/v12-i11/15058>
- American Society for Quality. (2023). *Customer satisfaction and quality management principles*. ASQ.

- Balinado, J. R., Abello, J. E., & Chua, M. T. (2021). Effect of service quality on customer satisfaction in an automotive after-sales service. *Journal of Asian Business Strategy*, 11(1), 12–25.
- Beard, C. (2014). *Customer feedback and service improvement strategies*. Routledge.
- Berry, L. L. (1983). Relationship marketing. In L. L. Berry, G. L. Shostack, & G. Upah (Eds.), *Emerging perspectives on services marketing* (pp. 25–28). American Marketing Association.
- Bettencourt, L. A., Lusch, R. F., & Vargo, S. L. (2014). A service lens on value creation: Customer experience and service processes. *Journal of Service Research*, 17(3), 235–249.
- Boone, L. E., & Kurtz, D. L. (2013). *Contemporary business* (15th ed.). Wiley.
- Carbone, L. P. (1994). Engineering customer experiences. *Marketing Management*, 3(3), 8–19.
- Chen, C. F., Chang, Y. Y., & Lee, C. Y. (2020). Application of the Kano model in service quality improvement. *Total Quality Management & Business Excellence*, 31(9–10), 1021–1035.
- Das, S., Rahman, M., & Karim, M. (2022). Effect of wheel alignment, speed, and road condition on fuel efficiency of a light-duty vehicle. *International Journal of Automotive Engineering*, 13(2), 101–118.
- Datu, J. A., & Valenzuela, M. (2021). Determinants of customer satisfaction in Philippine hospitality businesses. *Philippine Journal of Marketing*, 5(1), 50–67.
- Delos Santos, R. (2021). Preventive vehicle maintenance practices in Philippine automotive workshops. *Philippine Journal of Automotive Technology*, 6(2), 15–28.
- Department of Trade and Industry. (2025). *Car care service standards and accreditation guidelines*. <https://www.dti.gov.ph>
- Doloroso, T. (2019). *J.D. Power (2019). Philippines Customer Service Index (CSI) Study*. J.D. Power Asia Pacific.
- Farris, P. W., Bendle, N. T., Pfeifer, P. E., & Reibstein, D. J. (2010). *Marketing metrics: The definitive guide to measuring marketing performance* (2nd ed.). Pearson Education.
- Gallega, R. M. (2025). Service process efficiency and vehicle reliability in Philippine car care providers. *Journal of Automotive Service Management*, 2(1), 10–24.
- Hassan, R., & Jamil, A. (2020). Safety practices and customer confidence in automotive repair workshops. *Journal of Mechanical Engineering and Automotive Research*, 9(3), 144–156.
- Hill, N., Roche, G., & Allen, R. (2006). *Customer satisfaction: The customer experience through the customer's eyes*. Cogent Publishing.
- Kano, N. (1980). Attractive quality and must-be quality. *Journal of the Japanese Society for Quality Control*, 14(2), 39–48.
- Kim, J., & Choi, H. (2018). Automotive air-conditioning maintenance and system performance. *Journal of Automotive Technology*, 19(5), 711–720.
- Kotler, P., & Keller, K. L. (2016). *Marketing management* (15th ed.). Pearson Education.

- Lopez, M. (2020). Pricing transparency and customer satisfaction in automotive services. *Philippine Business Review*, 8(2), 66–80.
- Maxham, J. G., & Netemeyer, R. G. (2002). Modeling customer perceptions of complaint handling over time. *Journal of Marketing*, 66(4), 57–71.
- Mohanty, S., Sahoo, B., & Apat, H. K. (2021). A quality of service (QoS) aware fog computing model for intelligent (IoT) applications. *Proceedings of the 19th OITS International Conference on Information Technology (OCIT)*.
- Nguyen, T., & Nguyen, H. (2018). Determinants of service quality in the automotive repair industry. *Asian Journal of Business Research*, 8(1), 98–112.
- Oliver, R. L. (1993). A conceptual model of service quality and service satisfaction. *Advances in Services Marketing and Management*, 2, 65–85.
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1985). A conceptual model of service quality and its implications for future research. *Journal of Marketing*, 49(4), 41–50.
- Qualtrics. (2023). *Customer satisfaction (CSAT): Definition and measurement*. <https://www.qualtrics.com>
- Quimba, F. M., & Rosellon, M. A. (2010). Innovation and technology adoption in the Philippine automotive services sector. *Philippine Institute for Development Studies Discussion Paper Series*.
- Raza, S. A., Umer, A., Qureshi, M. A., & Dahri, A. S. (2020). Impact of service quality on customer satisfaction in automotive workshops. *Journal of Public Affairs*, 20(3), e2043.
- Reyes, P. (2021). Pricing transparency in automotive repair services. *Philippine Journal of Consumer Studies*, 4(1), 55–70.
- Reyes, P. (2023). The role of OBD-II diagnostic tools in preventive vehicle maintenance. *Journal of Automotive Diagnostics*, 7(2), 23–37.
- Sachelarie, D., Achitei, G., Munteanu, A. I., Sachelarie, A., Donțu, A. I., Tcaciuc, G. D., & Popescu, A. (2025). Air Conditioning Systems in Vehicles: Approaches and Challenges. *Sustainability*, 17(12), 5257. <https://doi.org/10.3390/su17125257>
- Sharma, R., & Kumar, P. (2020). Service delay and technician competence in automotive service centers. *International Journal of Service Industry Management*, 31(5), 1023–1040.
- Singh, R., & Kapoor, V. (2019). Role of modern diagnostic tools in automotive service quality. *International Journal of Automotive Science*, 6(1), 75–89.
- Torres, J., & Consunji, R. (2021). SERVQUAL and customer satisfaction in Toyota Dasmariñas-Cavite. *Philippine Journal of Service Management*, 5(2), 33–49.
- Villegas, M., & Blanco, D.T. M. (2022). Customer Satisfaction with the Post-Purchase Services of an Automotive Company. *Res Militaris (resmilitaris.net)*, vol.12.
- Zeithaml, V. A., Bitner, M. J., & Gremler, D. D. (2018). *Services marketing: Integrating customer focus across the firm* (7th ed.). McGraw-Hill.

Abun et al., *Divine Word International Journal of Management and Humanities* 5(2)(2026) 3606-3631
Zygiaris, S., Hameed, Z., Rehman, Z., & Zameer, H. (2022). Service quality and customer satisfaction in the post-pandemic world: A study of the Saudi auto care industry. *Sustainability*, 14(9), 5023.

Publisher's Note: DWIJMH stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



CC BY-NC-SA 4.0

Attribution-NonCommercial-ShareAlike 4.0 International

© 2026 by the authors. Published by Divine Word International Journal of Management and Humanities under the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License
<https://creativecommons.org/licenses/by-nc-sa/4.0/>