The influence of service quality on customer satisfaction in maintaining loyalty at COCO SPBU in Medan City

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ABSTRACT

With the growing number of private vehicles on the road, fuel consumption has significantly increased. In this context, customer satisfaction plays a crucial role in fostering customer loyalty, which is a key indicator of success in encouraging repeat usage of services or products. This research aims to determine the factors that influence service quality on customer satisfaction and loyalty at COCO gas stations in Medan City, North Sumatra. This research method uses Structural Equation Modeling-Partial Least Square (SEM-PLS) analysis because Smart PLS version 4 software makes it possible to see the relationship between variables simultaneously and take into account the direct and indirect effects between variables. The population in this study are customers at COCO gas stations in Medan City. North Sumatra. This research uses a questionnaire data collection technique with a sample of 100 respondents, which contains 18 indicator questions that can represent an assessment of gas station services. From this research, the results show that there is a significant influence of physical evidence and power on customer satisfaction. as well as customer satisfaction on customer loyalty.

1. Introduction

Motorized vehicles have become essential for those with activities outside the home. In Indonesia, the number of motorized vehicles has steadily increased, growing by 1.89% in 2020 to a total of 2,520,439 vehicles compared to the previous year. This trend continued in 2021 with a 4.30% increase, reaching 5,855,122 vehicles (Central Statistics Agency, 2022). Correspondingly, fuel consumption rose by approximately 27% in 2022 compared to 2021, as reported by the Ministry of Energy and Mineral Resources. In Medan City alone, the total number of motorized vehicles reached 288,394 units in 2022, according to the Central Statistics Agency.

People can buy fuel at public fuel filling stations commonly known by the abbreviation SPBU. Gas station management uses business management patterns, during tight competition in the business world today, gas station business management is required to be able to provide good service to its customers. Service to customers in the gas station business plays an important role because good customer service will advance the gas station business. On the other hand, gas stations that ignore customer service can result in the number of customers decreasing.

PT. XYZ has three gas station ownership schemes, Dealer Owned, Dealer Operated (DODO) gas stations are completely privately owned, both land, Assets, and operational activities. Company Owned Dealer Operated (CODO) SPBU where the SPBU is owned by PT. XYZ, but operational activities are regulated by the private sector. Then the Company Owned Company Operated (COCO) gas station which is fully managed by PT. XYZ (Sudarma & Surjandari, 2022). According to data from

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the Ministry of Energy and Mineral Resources, there are 92 PT. Gas stations, XYZ in Medan City from 379 gas stations throughout North Sumatra Province. The COCO Polonia gas station is also equipped with several facilities other than fuel such as a Bright C-Store. ATM Center, air and water filling tenant, nitrogen tenant, prayer room, public facilities such as toilets, and even a KFC restaurant. The choice of fuel types is quite complete, such as Bio Solar. Solar. Pertamax. Pertamina Dex. Pertamax Racing. as well as Pertamina lubricants. With so many fuel choices and supporting facilities, this gas station has become the most visited COCO gas station in the city of Medan.

Service quality and customer satisfaction are two important factors for every organization to create public satisfaction with the services provided. Profit and non-profit organizations must always make efforts to improve quality to meet customer satisfaction (Riyadi et al., 2023). Apart from that, People as customers can be satisfied so that people become loyal and feel happy after making transactions at gas stations (Retno Indah Sulistyorini, 2022). (Riseetyawan & Eviana Sari, 2022) explains the feelings that arise after comparing their impressions of the results of a product and their expectations of customer satisfaction, If customers are not satisfied, It will be easy to move to another similar company. There is research that uses path analysis in long-term plans that influence COVID-19 in Indonesia (Atikno et al., 2022). Then, in the field of study, there is an analysis of literature related to SEM PLS, which is generally on management behavior variables (Sjarifudin et al., 2023).

This research was born because we looked at competition among fuel distributors, what service standards influence customer satisfaction, and whether and when satisfied. Customers will become loyal. As well as analyzing what variables influence consumer satisfaction and loyalty. The results of this research analysis can be used by companies to be able to assess services that are of concern and are not too important or unnecessary for consumer satisfaction (Farizal & Putra, 2016). Companies can focus on service and continue to develop so that they are not inferior to business competition and can dominate the market. This research also aims to examine the influence of customer satisfaction on customer loyalty.

Previously, There has been a lot of research discussing customer satisfaction and customer loyalty. Retno Indah Sulistyorini (2022) found that service quality simultaneously influences gas station customer satisfaction and partially the physical evidence, Responsiveness, and guarantee variables do not influence customer satisfaction but reliability. Research (Kubangun, 2020) did not find a significant influence between service quality and consumer satisfaction because in Buru Regency it is not like in big cities where it is easy to find gas stations and people keep returning to those gas stations, so gas stations services do not affect the quality of service. It is hoped that the results of this research can be used to improve service quality and competitiveness in the fuel distribution market.

2. Methods

The sampling location was the COCO Polonia gas station in Medan City. This research uses primary data from questionnaires. Personal questionnaires were given to consumers who were making transactions at the COCO Polonia gas station. By using a non-probability sampling technique, namely purpose sampling, where the sample is determined by taking into account the research problem to obtain representative data so that it is accurate (Anggapratama & Irnawati, 2023). Two parts of the questionnaire must be filled in by respondents, namely the respondent's social profile. Contains the respondent's personal information and social information such as age, gender, occupation, frequency of visits, last education, type of fuel purchased, and type of vehicle. The second part contains questions related to the variables to be studied. Using a 1-5 Likert scale to obtain interval data and given a score of 1 representing Strongly Disagree (STS) to a score of 5 representing Strongly Agree (SS). The total sample who filled out the questionnaire was 100 respondents (Gunawan & Megawati, 2023).

The next stage is evaluating the measurement model, and testing the accuracy of data, reliability, and validity. Indicators with good reliability if the outer loading value is > 0.70 and Convergent Validity (CR) > 0.6 are classified as acceptable, if the value is below 0.50-0.60 it must be discarded from the analysis. If the results of the questionnaire answers are consistent, it can be said that the data is reliable, which can be seen from Cronbach's Alpha and Composite Reliability with a limit value of > 0.50. for Average Variance Extracted (AVE) > 0.50. The AVE root is greater than the correlation and the HTMT value is <0.90 (Ermawati, 2018).

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To evaluate the structural model, the inner model or multicollinear test between latent variables (Inner VIF) < 5. Significant variable relationships are indicated by the statistical P value with a significance level < 0.05 and T statistics > 1.95. The t statistic indicates the area of rejection. Therefore, when H0 is rejected, the hypothesis being tested is accepted (Hair et al., 2019).

The next stage is evaluating the suitability and goodness of the model with R square. Q square and F square have 3 categories low, moderate, and high. Research (Ekasari et al., 2018) chose five indicators that could represent Pertamina Way's SOP and were also adapted to measure services at COCO gas stations through five things such as Physical Evidence. Reliability. Responsiveness. Certainty and Empathy to measure service quality variables. If the quality of performance has been measured, then customer satisfaction can be analyzed, whether consumers at the COCO Polonia gas station are satisfied or not, and from here we can also measure consumer loyalty figures. The rationale for this research can be seen in Fig. 1.

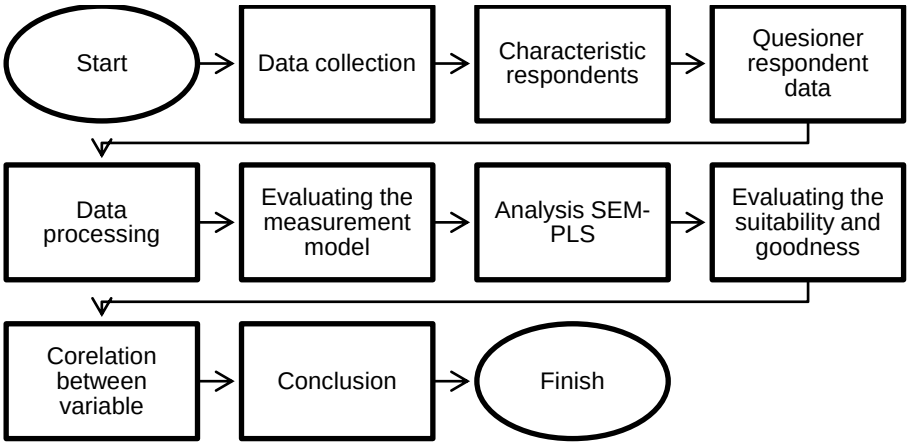

Fig. 1 Research framework.

The variables and indicators of this research can be seen in Table 1. This research uses variables measured using five indicators that support the SOP for gas station services, namely physical evidence such as adequate facilities and equipment, and operators in uniform so they are easy to find at the location. Empathy, such as the operator's smile greeting and greeting. Reliability of operators and gas station management in providing *PASTI PAS* services, certainty in payment transactions operator communication methods, and operator responsiveness in serving and helping consumers. These criteria were chosen to analyze customer satisfaction with gas station services, which will then create loyalty where consumers become gas station customers and even recommend them to people closest to them (Pamungkas & Barata, 2016). The relationship between the variables of this research can be seen in Fig. 2.

Table 1 Research variables and indicators (Garson, 2015)

No	Variable	Indicators	Code
1	Tangible	Equipment and Facilities Standards in Service	BF1
		The operator's appearance is wearing a uniform	BF2
		Toilets are clean	BF3
		Additional Gas Station Facilities	BF4
2	Empathy	Employees are friendly with smiles and greetings	E1
		Employees ask what products to buy	E2
3	Reliability	The operator guides the vehicle to stop in the area provided	KA1
		The ability of gas stations to provide fuel in the right dosage (PASTI PAS)	KA2
		Information on the rules that must be obeyed when refueling	KA3
4	Assurance	Operators communicate with good etiquette	KP1
		Payment transactions	KP2
		Information starts from zero.	KP3

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No	Variable	Indicators	Code
5	Responsiveness	Speed of service	DT1
		Responsive to help consumers who need help	DT2
6	Customer satisfaction	There are no complaints from consumers	K1
		Repeat purchases	K2
7	Customer loyalty	Consumers subscribe at gas stations	LP1
		Consumers recommend gas stations to others.	LP2

H1: There is an influence of the quality of physical evidence on customer satisfaction.
H2: There is an influence of the quality of empathy on customer satisfaction.
H3: There is a quality of reliability in customer satisfaction.
H4: There is an influence of assurance quality on customer satisfaction.
H5: There is an influence of responsiveness quality on customer satisfaction.
H6: There is an influence of customer satisfaction on customer loyalty.

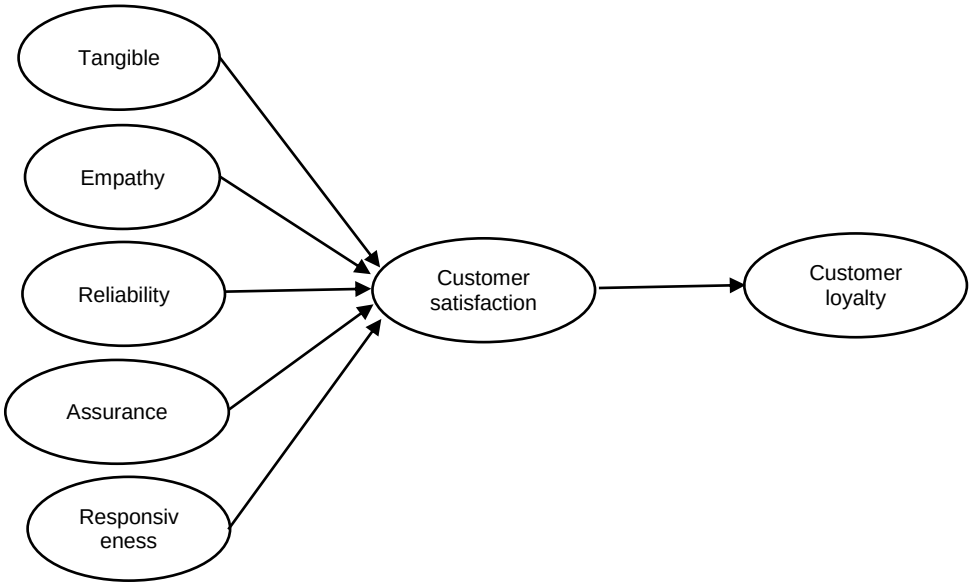

Fig. 2 Relationship between research variables.

The research model uses Multivariate Analysis, the PLS-SEM method. the SmartPLS application (Asih et al., 2022; Purwati et al., 2020). SmartPLS as a scientifically based software is designed to ensure accurate results and user-friendliness to support both novice and expert users in developing sophisticated and scientifically sound PLS-SEM analysis (Sukamani & Wang, 2020). SmartPLS is simpler and easier to use compared to Lisrel and Amos because the software allows one to view relationships between variables simultaneously and take into account direct and indirect influences between variables. The results of this application can be in the form of organized tables, easy to learn, and some in the form of informative graphs. Users of this application can export the results in Excel. HTML format, and can be saved for reuse (Memon et al., 2021).

3. Results and Discussion

Respondents were 100% gas station users of productive age, dominated by consumers aged 31-40 years who were male. Meanwhile, the number of gas station visitors per week can be seen in Fig. 3. Fig. 3 explains the frequency of consumers who often fill up with fuel at the COCO Polonia gas station. It can be seen that 46 respondents out of 100 respondents answered that they fill up with fuel 2-3 times a week.

In Table 2, it can be seen that the respondents are those who already understand fuel distributors because 100% of those who are of productive age are also average workers and have filled up fuel at

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this gas station, so they are considered worthy as respondents. Table 3 shows the outer results for each indicator of the six variables. The loading factor of each indicator is > 0.60, so it meets the validity level. The lowest outer loading is E1, namely 0.652. It can be seen in Table 4 where all of them have Cronbach's alpha and Average Variance Extracted (AVE) limit values > 0.50. where the data is valid.

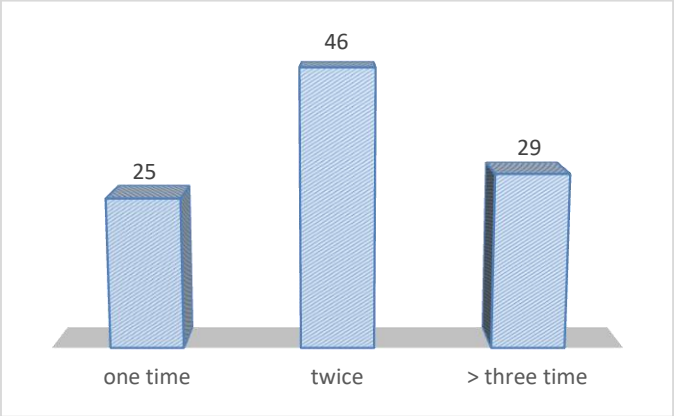

Fig. 3 Frequency of fuel filling per week.

Table 2 Respondent demographic data

Description		Amount
Gender	Male	76
	Female	24
Age	17 - 20	7
	21 - 30	27
	31 - 40	44
	41 - 50	15
	> 50	7
Fuel Type	Gas	67
	Solar	33
Transportation type	Two wheels	39
	Three wheels	4
	Four wheels	57
Type of work	Student	8
	Private employees	27
	Self-employed	19
	PNS/TNI/POLRI	30
	Others	16
Fuel Refill Frequency	1x	25
	2-3x	46
	> 3x	29

Table 3 Outer loadings list

Hypothesis	Outer Loading	Hypothesis	Outer Loading
BF1 <- Tangible	0.881	K2<-Customer Satisfaction	0.903
BF2 <- Tangible	0.786	KA1<-Reliability	0.817
BF3 <- Tangible	0.871	KA2<-Reliability	0.891
BF4 <- Tangible	0.869	KA3<-Reliability	0.704
DT1<- Responsiveness	0.822	KP1<-Assurance	0.789
DT2<- Responsiveness	0.879	KP2<-Assurance	0.820
E1<- Empathy	0.652	KP3<-Assurance	-0.745
E2<- Empathy	0.938	LP1<- Customer loyalty	0.943
K1<-Customer Satisfaction	0.914	LP2<- Customer loyalty	0.943

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If the result of the square root of AVE construct is greater than the correlation with all other constructs then it is said to have good discriminant validity, as seen in Table 4. Overall the indicators have an AVE value > 0.50 then each variable is declared reliable, at an acceptable variable level. For example, the AVE value is 0.727. where the variation in BF 1 to BF4 contained in the variable is 0.727 > 0.5. then the convergent validity requirements are met well.

Table 4 Calculation results of Cronbach's alpha, construct reliability, and aAverage Variance Extracted

	Cronbach's alpha	Composite Reliability (rho_a)	Composite Reliability (rho_c)	Average Variance Extracted (AVE)
Tangible	0.875	0.888	0.914	0.727
Responsiveness	0.623	0.635	0.840	0.725
Empathy	0.518	0.732	0.785	0.653
Reliability	0.752	0.873	0.848	0.652
Assurance	0.695	0.713	0.828	0.616
Customer Satisfaction	0.789	0.791	0.905	0.826
Customer loyalty	0.863	0.867	0.936	0.880

The maximum HTMT value is 0.900. in Table 5 it can be seen that the discriminant validity level results are good. Like HTMT Data responsiveness to Physical Evidence of 0.751 is below 0.900 where convert discriminant validity is achieved. In Table 6, each value in the diagonal axis is called the root of AVE. where each axis must be greater than the correlation with other variables. From the following table, the validity of the correlation variable is met.

Table 5 Heterotrait-monotrait ratio (HTMT) calculation results – matrix

	Tangible	Responsiveness	Empathy	Reliability	Assurance	Customer Satisfaction
Tangible						
Responsiveness	0.751					
Empathy	0.784	0.774				
Reliability	0.810	0.673	0.719			
Assurance	0.867	0.855	0.779	0.837		
Customer Satisfaction	0.834	0.779	0.714	0.662	0.778	
Customer loyalty	0.774	0.668	0.896	0.691	0.675	0.715

Table 6 Fornell-Larcker criterion calculation results

	Tangible	Responsiveness	Empathy	Reliability	Assurance	Customer Satisfaction	Customer Loyalty
Tangible	**0.852**						
Responsiveness	0.559	**0.851**					
Empathy	0.559	0.493	**0.808**				
Reliability	0.671	0.487	0.500	**0.808**			
Assurance	0.688	0.571	0.485	0.646	**0.785**		
Customer Satisfaction	0.703	0.565	0.502	0.565	0.594	**0.909**	
Customer loyalty	0.673	0.499	0.601	0.582	0.534	0.590	**0.938**

Table 7 shows the results of cross-loading where each construct correlation correlates more strongly or higher with the variable it measures, so all discriminant validity is met. In testing the Structural Model, it is necessary to check multicollinearity between variables with Inner VIF before testing the structural model. If the VIF value < 5, it means there is no multicollinearity in the variables that influence customer satisfaction. It can be seen in Table 8 that there is no multilinearity between variables that influence customer loyalty.

In Table 9, the results after booth strapping show that physical evidence has a significant influence on the satisfaction of 0.430 with a t statistic (2.876 > 1.96) or nka p-value (0.004 < 0.05). Thus, every

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change in physical evidence will increase job satisfaction significantly. Empathy for satisfaction, reliability for satisfaction, and certainty for satisfaction have a p-value> 0.05 so they are not significant. The variable that has the greatest influence on satisfaction is physical evidence, while the satisfaction variable influences customer loyalty by 0.590. At the 95% confidence interval, the effect of Physical Evidence on satisfaction is (0.110). For example, if physical evidence services are improved at gas stations, such as adding pumps, toilet facilities, and additional facilities, the impact on customer satisfaction will increase by 0.687. as in Table 10.

Table 7 Cross loading

	Tangible	Responsiveness	Empathy	Reliability	Assurance	Customer Satisfaction	Customer Loyalty
BF1	**0.881**	0.513	0.494	0.584	0.630	0.640	0.582
BF2	**0.786**	0.381	0.443	0.553	0.519	0.481	0.550
BF3	**0.871**	0.478	0.502	0.553	0.571	0.673	0.620
BF4	**0.869**	0.522	0.463	0.608	0.621	0.575	0.541
DT1	0.455	**0.822**	0.393	0.482	0.478	0.436	0.329
DT2	0.496	**0.879**	0.444	0.361	0.495	0.521	0.506
E1	0.329	0.211	**0.652**	0.263	0.316	0.235	0.450
E2	0.541	0.514	**0.938**	0.498	0.456	0.514	0.537
K1	0.709	0.556	0.452	0.568	0.584	**0.914**	0.495
K2	0.563	0.469	0.461	0.456	0.493	**0.903**	0.579
KA1	0.519	0.314	0.409	**0.817**	0.562	0.393	0.450
KA2	0.620	0.509	0.468	**0.891**	0.596	0.608	0.553
KA3	0.468	0.294	0.298	**0.704**	0.363	0.253	0.365
KP1	0.531	0.484	0.389	0.513	**0.789**	0.469	0.459
KP2	0.609	0.474	0.401	0.565	**0.820**	0.544	0.448
KP3	0.459	0.372	0.349	0.423	**0.745**	0.352	0.332
LP1	0.615	0.478	0.591	0.58	0.521	0.575	**0.943**
LP2	0.650	0.456	0.534	0.509	0.479	0.530	**0.933**

Table 8 Inner VIF

	Satisfaction	**Customer loyalty**
Tangible	2.535	
Responsiveness	1.700	
Empathy	1.609	
Reliability	2.122	
Assurance	2.323	
Customer Satisfaction		1.000
Customer loyalty		

Table 9 Mean, STDEV, T values, P values

	Original Sample (O)	Sample Mean (M)	Standard Deviation (Stdev)	T Statistics (|O/Stdev|)	P values
Tangible ->Customer Satisfaction	0.430	0.426	0.149	2.876	0.004
Responsiveness->Customer Satisfaction	0.190	0.185	0.084	2.263	0.024
Empathy->Customer Satisfaction	0.081	0.087	0.066	1.224	0.221
Reliability->Customer Satisfaction	0.080	0.085	0.106	0.755	0.451
Assurance->Customer Satisfaction	0.099	0.103	0.093	1.063	0.288
Customer Satisfaction->Customer loyalty	0.590	0.593	0.066	8.988	0.000

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Table 10 95% confidence interval path coefficient

	Original Sample (O)	Sample Mean (M)	2.5%	97.5%
Tangible ->Customer Satisfaction	0.430	0.426	0.110	0.687
Responsiveness->Customer Satisfaction	0.190	0.185	0.014	0.345
Empathy->Customer Satisfaction	0.081	0.087	-0.044	0.216
Reliability->Customer Satisfaction	0.080	0.085	0.125	0.296
Assurance->Customer Satisfaction	0.099	0.103	0.079	0.290
Customer Satisfaction->Customer loyalty	0.590	0.593	0.454	0.707

Those that experience significant influence where P Values must be smaller than 0.05. If you look at Table 11, there are only two significant variables, which if you look at the t statistic, must be greater than 1.96 or the p-value must be smaller than 0.05. For example, responsiveness has a significant indirect effect on the loyalty of 0.112 with t statistic (2.206 > 1.96) or p-value (0.027 < 0.05). Satisfaction significantly acts as a variable that mediates the indirect effect of responsiveness on loyalty.

Table 11 Specific indirect effects

	Original Sample (O)	Sample Mean (M)	Standard Deviation (Stdev)	T Statistics (|O/Stdev|)	Pvalues
Empathy->Customer Satisfaction->Customer loyalty	0.048	0.052	0.04	1.179	0.239
Responsiveness->Customer Satisfaction->Customer loyalty	0.112	0.109	0.051	2.206	0.027
Reliability->Customer Satisfaction->Customer loyalty	0.047	0.049	0.062	0.764	0.445
Assurance->Customer Satisfaction->Customer Loyalty	0.058	0.06	0.055	1.066	0.286
Tangible ->Customer Satisfaction->Customer loyalty	0.253	0.256	0.101	2.507	0.012

In evaluating the suitability and goodness of the model. the f square value is divided into 3 categories, where f square is (0.02 low). (0.15 moderate) and (0.35 high). In Table 12, it can be seen that the effect of physical evidence on satisfaction is 0.163 in the moderate or medium category. The effect of responsiveness on satisfaction is 0.047 in the low category and the effect of satisfaction on customer loyalty is 0.534 in the high category.

Table 12 F square

	Customer Satisfaction	Customer loyalty
Tangible	0.163	
Responsiveness	0.047	
Empathy	0.009	
Reliability	0.007	
Assurance	0.009	
Customer Satisfaction		0.534
Customer loyalty		

Table 13 Inner model R-square

	R-square
Customer Satisfaction	0.554
Customer loyalty	0.348

It can be seen in Table 13 that the close relationship between the Satisfaction variable model is influenced by Physical Evidence. Responsiveness, Empathy, Reliability, and Certainty are influenced

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by 55.4% which is classified as a medium model and the Customer Loyalty variable is influenced by Customer Satisfaction by 34.8%, which is classified as a weak model.

For Q2 value = 1 – (1-R2 Satisfaction) x (1- R2 Customer Loyalty). Then the Q2 value is 0.709. This shows that the large diversity of research data explained by the research model is 70.9% and the remaining 29.1% is explained by other factors outside the research model. Q square > 0 which indicates a structural model prepared to explain customer satisfaction and loyalty at relevant gas stations or in the good category and has predictive relevance. Thus, this research model can be stated to have good goodness of fit from these results (Andrianti & Anindita, 2022).

Table 14 shows the SRMR value of 0.074. where the SRMR value <0.10 is declared acceptable because it meets the criteria for the model fit, If the SRMR value is > 0.1, it indicates that there is a compatibility problem (Marninda & Kesumahati, 2023; Putra & Liesty Indriani, 2023).

Table 14 Fit summary

	Saturated Model	Estimated Model
SMRM	0.074	0.104
d_ULS	0.929	1.856
d_G	0.567	0.665
Chi-square	448.014	376.425
NFI	0.667	0.639

Table 15 measures the significance of hypothesis support, if the T-statistic value is higher than the T-table value, it means the hypothesis is accepted. For a 95% confidence level (with an alpha of 5%) the T-table value for the two-tailed hypothesis must be ≥ 1.96. There are three hypotheses accepted in the research including:

H1: There is an influence of the quality of physical evidence on customer satisfaction.

H5: There is an influence of responsiveness quality on customer satisfaction.

H6: There is an influence of customer satisfaction on customer loyalty.

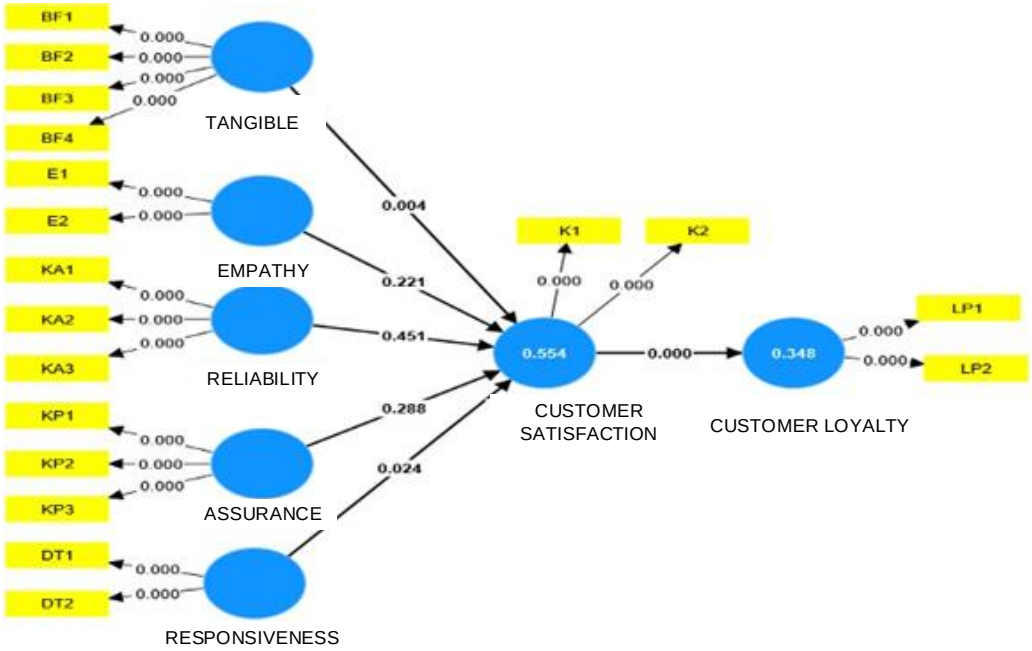

Fig 4. Bootstrapping structural model.

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Table 15 Hypothesis testing t

	T statistics	Value T-Table	P values	Hipotesis
Tangible ->Customer Satisfaction	2.876	1.96	0.004	Hypothesis accepted
Responsiveness->Customer Satisfaction	2.263	1.96	0.024	Hypothesis accepted
Empathy->Customer Satisfaction	1.224	1.96	0.221	Hypothesis rejected
Reliability->Customer Satisfaction	0.755	1.96	0.451	Hypothesis rejected
Assurance->Customer Satisfaction	1.063	1.96	0.288	Hypothesis rejected
Customer Satisfaction->Customer loyalty	8.998	1.96	0.000	Hypothesis accepted

Table 15 shows the Q2 prediction value for customer satisfaction and loyalty is greater than 0, meaning the model has predictive relevance. The variables of customer satisfaction and loyalty have predictive relevance. Where satisfaction with a 0.494 level of prediction accuracy is in the medium to high category of 0.5, Likewise with customer loyalty.

H1: Comparison of the hypothesis with other research that tangible variables simultaneously influence customer satisfaction. The hypothesis results state that there is a significant influence of the quality of physical evidence on customer satisfaction so the hypothesis is accepted. The service center needs to ease the customer in whatever their purpose to come to the service center and make them comfortable enough (Mohamed Sahari et al., 2017). Customer satisfaction is also influenced by satisfactory physical evidence in the form of products received by customers that must comply with customer requirements.

H2: Then compare the hypothesis with other research that the responsiveness variable simultaneously influences the customer satisfaction variable. The hypothesis is that there is a significant influence of the quality of empathy on customer satisfaction so the results are acceptable. This also follows other research that the responsiveness variable has a positive effect on customer satisfaction (Fasihi et al., 2021). Customer satisfaction is also influenced by the quick response from the manufacturer so that all customer needs can be answered quickly (Kurnia et al., 2023).

H3: The empathic variable in this hypothesis is not accepted because this variable is very flexible depending on the subjectivity of the customer so the product provider does not have empathy for the service (Bakhtiar et al., 2012). Customer satisfaction is not influenced by empathic moral subjectivity towards the product, but rather the service. The empathy indicators in this research are friendly employees with smiles and greetings and employees asking what products to buy not affect customer satisfaction, because such things have become a duty and obligation for producers to customers.

H4: Reliability variables include what the operator does by guiding the vehicle to stop in the area provided, then talking to the customer to provide fuel in the right dose (PASTI PAS), and information on the rules that must be obeyed when refueling. This indicator does not affect customer satisfaction. The motto issued by gas station management does not affect customer satisfaction in verbal form (Nugraha et al., 2021).

H5: The assurance variable in the hypothesis results does not affect customer satisfaction. This is because operator activities communicate with good etiquette and payment transaction information starts from zero, it is the duty and responsibility of gas station management toward customers (Mohamed Sahari et al., 2017).

H6: Regarding the variable Customer Satisfaction simultaneously with customer loyalty, other research results show that customers will be loyal if their customer satisfaction has been met according to the initial target (Purwati et al., 2020). Customers will feel happy with the absence of complaints given to the manufacturer so this variable influences customer satisfaction (Jaqin et al., 2023).

Table 16 LV prediction

	Q2 predict
Customer Satisfaction	0.494
Customer loyalty	0.419

4. Conclusion

Factors that influence service quality on customer satisfaction and loyalty at COCO gas stations in Medan City. North Sumatra was carried out with 100 respondents filling out the questionnaire. This research shows that the physical evidence variable has a significant influence on customer

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satisfaction, there is a significant influence on the responsiveness variable on customer satisfaction and there is a significant influence on the customer satisfaction variable on customer loyalty, while empathy, reliability, and certainty variables influence customer satisfaction variable. The limitation of this research is that the variables used are only physical evidence. Responsiveness, empathy, reliability, and certainty influence customer satisfaction and are only carried out at one gas station at the COCO gas station. Apart from that, research is limited by the variables taken and research time. It is hoped that future research can use more varied variables by adding indicators and increasing the number of gas stations carried out.

The suggestions submitted to COCO gas stations are to improve performance in the area of physical evidence (hard work) that is visible to customers and provide responsiveness to customers so that customers become satisfied in the future so that customers become more loyal in using COCO gas station services. Further research can be carried out in a wider population distribution, namely COCO gas stations which are spread across all provinces in the archipelago so that there are more respondents, so research limitations can be addressed in further research.

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