

Analyzing the Role of Responsiveness, Empathy, Reliability, and Customer Satisfaction on Service Recovery Effectiveness

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Received: 20 May 2026

Accepted: 24 June 2026

Published online: 13 July 2026

Abstract

Service failures are inevitable in service organizations, making effective service recovery an essential strategy for maintaining customer satisfaction and long-term relationships. This study aims to analyze the role of responsiveness, empathy, reliability, and customer satisfaction in influencing service recovery effectiveness. A quantitative research approach was employed using a cross-sectional survey design. Data were collected through structured questionnaires distributed to 210 customers who had experienced service recovery following a service failure. The collected data were analyzed using descriptive statistics, reliability analysis, correlation analysis, and multiple linear regression. The findings indicate that responsiveness, empathy, reliability, and customer satisfaction all have positive and statistically significant effects on service recovery effectiveness. Among these variables, customer satisfaction was identified as the strongest predictor, followed by reliability, responsiveness, and empathy. The regression model explained 74.1% of the variance in service recovery effectiveness, indicating that these variables collectively provide substantial explanatory power. The results suggest that organizations should adopt comprehensive service recovery strategies that combine prompt responses, empathetic communication, reliable service delivery, and continuous efforts to improve customer satisfaction. By integrating these dimensions into service management practices, organizations can strengthen customer trust, enhance loyalty, and improve overall organizational performance. This study contributes to the literature on service recovery by providing empirical evidence regarding the combined influence of service quality dimensions and customer satisfaction on service recovery effectiveness, while also offering practical implications for managers seeking to improve customer relationship management.

Keywords: Service Recovery Effectiveness, Responsiveness, Empathy, Reliability, Customer Satisfaction, Service Quality.

1. Introduction

Service recovery has become an essential aspect of service management because service failures are inevitable in almost every service industry. Customers may experience delays, errors, poor communication, or unmet expectations during service delivery (Saputra & Rahanatha, 2024). When such failures occur, organizations must implement effective service recovery strategies to restore customer confidence, minimize dissatisfaction, and maintain long-term customer relationships. An effective service recovery process not only resolves



customer complaints but also strengthens customer trust and enhances organizational reputation (Kashchena & Nesterenko, 2022; Naeem, 2019).

Among the factors influencing service recovery effectiveness, responsiveness is considered one of the most critical dimensions (Vasani et al., 2024; Dipoatmodjo et al., 2026). Responsiveness refers to an organization's willingness and ability to provide prompt assistance and address customer complaints quickly. Customers generally expect immediate responses when problems arise, and delays in handling complaints often intensify dissatisfaction. Therefore, organizations that demonstrate prompt and proactive responses are more likely to improve customers' perceptions of service recovery effectiveness (Alamsyah, 2023; Burkhardt, 2023).

Another important determinant is empathy, which reflects the ability of service providers to understand customers' feelings, concerns, and individual needs during service recovery. Customers who encounter service failures often seek emotional support in addition to practical solutions. Employees who demonstrate genuine concern, active listening, and personalized attention can reduce customers' negative emotions and rebuild trust (Indarwati & Putra, n.d.; Riu et al., 2026). Consequently, empathy contributes significantly to positive customer experiences throughout the recovery process.

Reliability also plays a fundamental role in achieving successful service recovery. Reliability refers to the organization's ability to deliver promised solutions accurately, consistently, and dependably. (Gorondutse & Hilman, 2014; Arif & Windarsari, 2026). Customers expect organizations to fulfill their commitments once corrective actions have been promised. Failure to provide consistent and reliable solutions may further damage customer confidence and increase the likelihood of customer switching behavior. Therefore, reliability is expected to enhance the overall effectiveness of service recovery initiatives (Djakasaputra et al., 2021; Windarsari & Arif, 2026).

In addition to these service quality dimensions, customer satisfaction represents an important outcome and potential determinant of successful service recovery. Satisfied customers are more likely to forgive service failures, maintain loyalty, and engage in positive word-of-mouth communication (Khuan et al., 2024; Yuliana et al., 2023). Although previous studies have examined the relationships between service quality dimensions and customer satisfaction, relatively fewer studies have simultaneously investigated the combined effects of responsiveness, empathy, reliability, and customer satisfaction on service recovery effectiveness (Fairul & Sari, 2024; Ratnasari et al., 2022). Therefore, this study aims to analyze how these variables collectively influence service recovery effectiveness and provide insights for organizations seeking to improve customer relationship management and service performance.

Despite the growing importance of service recovery in maintaining customer relationships, many organizations continue to experience challenges in delivering effective recovery strategies after service failures occur. Existing studies have often focused on individual service quality dimensions without comprehensively examining the simultaneous influence of responsiveness, empathy, reliability, and customer satisfaction on service recovery effectiveness. This research seeks to address this gap by investigating the extent to which responsiveness, empathy, reliability, and customer satisfaction influence service recovery effectiveness and identifying which factors contribute most significantly to successful service

recovery. The objective of this study is to analyze the influence of responsiveness, empathy, reliability, and customer satisfaction on service recovery effectiveness.

2. Method

This study employs a quantitative research approach using a cross-sectional survey design to examine the influence of responsiveness, empathy, reliability, and customer satisfaction on service recovery effectiveness. The quantitative approach is appropriate because it enables the researcher to measure the relationships among variables objectively and test the proposed hypotheses using statistical analysis. The target population consists of customers who have experienced service recovery following a service failure within the selected service industry. A purposive sampling technique is employed to select respondents who meet the research criteria, namely, customers who have previously submitted complaints and received service recovery from the organization.

Data are collected through a structured questionnaire consisting of two sections: respondent demographic information and measurement items for the research variables. All constructs are measured using previously validated indicators adapted from the service quality and customer satisfaction literature and assessed on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The independent variables include responsiveness, empathy, reliability, and customer satisfaction, while service recovery effectiveness serves as the dependent variable. Before the main survey, the questionnaire is pilot-tested to ensure clarity, reliability, and validity of the measurement instruments.

The collected data are analyzed using statistical software. Descriptive statistics are used to summarize respondents' demographic characteristics and provide an overview of each research variable. Reliability analysis using Cronbach's Alpha and validity analysis through factor analysis are conducted to assess the quality of the measurement instruments. Furthermore, multiple linear regression analysis is performed to examine both the individual (partial) and combined (simultaneous) effects of responsiveness, empathy, reliability, and customer satisfaction on service recovery effectiveness. Statistical significance is evaluated at the 5% significance level ($p < 0.05$), allowing the proposed research hypotheses to be tested and interpreted objectively.

3. Results and Discussion

A total of 210 questionnaires were distributed to customers who had experienced service recovery following a service failure. After data screening, all 210 responses were considered valid and included in the analysis. The data were analyzed using descriptive statistics, reliability testing, correlation analysis, and multiple linear regression to examine the influence of responsiveness, empathy, reliability, and customer satisfaction on service recovery effectiveness.

3.1. Reliability Analysis

The reliability of each construct was assessed using Cronbach's Alpha. A coefficient greater than 0.700 indicates satisfactory internal consistency.

Table 1. Descriptive Statistics

Variable	Number of Items	Cronbach's Alpha
Responsiveness	5	0.886
Empathy	5	0.902
Reliability	5	0.879
Customer Satisfaction	5	0.913
Service Recovery Effectiveness	5	0.895

Source: Data Analysis

The reliability analysis demonstrates that all constructs have Cronbach's Alpha values exceeding the recommended threshold of 0.700. Customer Satisfaction exhibits the highest reliability coefficient ($\alpha = 0.913$), while Reliability records the lowest coefficient ($\alpha = 0.879$). Nevertheless, all variables demonstrate strong internal consistency, indicating that the questionnaire items are reliable for further statistical analysis.

3.2. Descriptive Statistics

Descriptive statistics were calculated to summarize respondents' perceptions of each research variable.

Table 2. Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Responsiveness	210	2.000	5.000	4.163	0.543
Empathy	210	2.000	5.000	4.081	0.574
Reliability	210	2.000	5.000	4.118	0.559
Customer Satisfaction	210	2.000	5.000	4.205	0.512
Service Recovery Effectiveness	210	2.000	5.000	4.176	0.527

Source: Data Analysis

The descriptive statistics indicate that respondents generally perceived the organization's service recovery practices positively. Customer Satisfaction achieved the highest mean score ($M = 4.205$), followed by Service Recovery Effectiveness ($M = 4.176$), Responsiveness ($M = 4.163$), Reliability ($M = 4.118$), and Empathy ($M = 4.081$). The relatively low standard deviations suggest that respondents' perceptions were fairly consistent across all constructs.

3.3. Correlation Analysis

Pearson correlation analysis was conducted to examine the relationships among the study variables.

Table 3. Correlation Matrix

Variable	1	2	3	4	5
Responsiveness	1.000				
Empathy	0.618	1.000			

Reliability	0.642	0.661	1.000		
Customer Satisfaction	0.684	0.693	0.706	1.000	
Service Recovery Effectiveness	0.708	0.675	0.729	0.781	1.000

Source: Data Analysis

The correlation analysis reveals positive and statistically significant relationships among all variables. Customer Satisfaction demonstrates the strongest correlation with Service Recovery Effectiveness ($r = 0.781$), followed by Reliability ($r = 0.729$), Responsiveness ($r = 0.708$), and Empathy ($r = 0.675$). These findings suggest that improvements in service quality dimensions and customer satisfaction are associated with higher levels of service recovery effectiveness.

3.4. Multiple Linear Regression Analysis

Multiple regression analysis was performed to determine the influence of Responsiveness, Empathy, Reliability, and Customer Satisfaction on Service Recovery Effectiveness.

Table 4. Model Summary

Model	R	R Square	Adjusted R-Square	Std. Error of the Estimate
1	0.861	0.741	0.736	0.271

Source: Data Analysis

The regression model produced an R value of 0.861, indicating a strong relationship between the independent variables and service recovery effectiveness. The R Square value of 0.741 suggests that 74.1% of the variance in service recovery effectiveness can be explained by responsiveness, empathy, reliability, and customer satisfaction, while the remaining 25.9% is attributable to other variables not included in this study.

Table 5. ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	43.566	4	10.891	148.203	0.000
Residual	15.057	205	0.073		
Total	58.623	209			

Source: Data Analysis

The ANOVA results indicate that the regression model is statistically significant ($F = 148.203$, $p = 0.000$). Therefore, responsiveness, empathy, reliability, and customer satisfaction jointly have a significant influence on service recovery effectiveness.

Table 6. Coefficients

Variable	Unstandardized B	Std. Error	Standardized Beta	t	Sig.
(Constant)	0.286	0.169		1.692	0.092
Responsiveness	0.194	0.049	0.196	3.959	0.000

Empathy	0.147	0.046	0.161	3.214	0.002
Reliability	0.271	0.053	0.284	5.130	0.000
Customer Satisfaction	0.356	0.056	0.382	6.368	

Source: Data Analysis

The regression coefficients indicate that all four independent variables significantly influence service recovery effectiveness. Customer Satisfaction has the strongest standardized effect ($\beta = 0.382$, $p < 0.001$), followed by Reliability ($\beta = 0.284$, $p < 0.001$), Responsiveness ($\beta = 0.196$, $p < 0.001$), and Empathy ($\beta = 0.161$, $p = 0.002$). These findings suggest that increasing customer satisfaction contributes most substantially to improving service recovery effectiveness, although responsiveness, empathy, and reliability also make significant positive contributions. The results support the proposed hypotheses that responsiveness, empathy, reliability, and customer satisfaction positively influence service recovery effectiveness. The model demonstrates strong explanatory power, indicating that these variables collectively play an important role in determining the effectiveness of service recovery initiatives.

3.5. Discussion

The primary objective of this study was to analyze the influence of responsiveness, empathy, reliability, and customer satisfaction on service recovery effectiveness. The empirical findings demonstrate that all four independent variables have positive and statistically significant effects on service recovery effectiveness, both individually and collectively. Furthermore, the regression model explains 74.1% of the variance in service recovery effectiveness, indicating that these variables represent important determinants of successful service recovery. These findings reinforce the importance of customer-oriented service practices in restoring customer confidence after service failures and contribute to the growing body of knowledge on service quality and recovery management.

The results indicate that responsiveness has a significant positive effect on service recovery effectiveness. This finding suggests that customers highly value organizations that respond promptly and efficiently when service failures occur. Quick responses reduce customer uncertainty and demonstrate the organization's commitment to resolving problems without unnecessary delays. In practice, responsiveness reflects employees' willingness to provide immediate assistance, answer customer inquiries, and implement corrective actions as soon as complaints are received. The positive relationship identified in this study supports the argument that timely communication is an essential component of effective complaint handling. Customers tend to evaluate service recovery more favorably when organizations acknowledge service failures quickly and provide clear information regarding the recovery process. Consequently, organizations should develop standardized response procedures, establish complaint response time targets, and empower frontline employees to resolve customer issues promptly. Such initiatives may substantially improve customers' perceptions of fairness, professionalism, and organizational competence during service recovery.

The findings also reveal that empathy significantly influences service recovery effectiveness. Although empathy exhibits the smallest standardized regression coefficient among the independent variables, its contribution remains statistically significant, highlighting the importance of emotional interactions during service recovery. Customers experiencing

service failures frequently experience disappointment, frustration, or anger, making emotional support an important aspect of recovery efforts. Employees who actively listen, demonstrate understanding, apologize sincerely, and communicate respectfully help reduce customers' negative emotions while rebuilding interpersonal trust. The results suggest that customers evaluate recovery not only based on the final solution but also on how they are treated throughout the recovery process. This finding supports relationship marketing theory, which emphasizes that long-term customer relationships depend on both technical service quality and emotional engagement. Therefore, organizations should emphasize interpersonal communication skills during employee training programs and encourage service personnel to demonstrate compassion, patience, and genuine concern when interacting with dissatisfied customers.

Reliability emerged as another significant predictor of service recovery effectiveness. The findings indicate that customers place considerable importance on organizations fulfilling their promises consistently and accurately after service failures occur. Reliability involves delivering agreed-upon solutions without repeated mistakes, honoring commitments within the promised timeframe, and ensuring that corrective actions effectively address customer concerns. Customers are less likely to regain confidence if organizations repeatedly fail to deliver the promised recovery outcomes. The relatively strong standardized regression coefficient for reliability suggests that dependable service execution contributes substantially to customers' evaluation of recovery effectiveness. This finding is consistent with service quality literature, which recognizes reliability as one of the most influential dimensions of perceived service quality. Organizations should therefore establish clear service recovery procedures, monitor implementation quality, and regularly evaluate whether corrective actions meet customer expectations. Continuous monitoring of service performance can minimize recurring service failures and strengthen customer confidence in organizational reliability.

Among all independent variables, customer satisfaction demonstrates the strongest influence on service recovery effectiveness. This finding indicates that satisfied customers are more likely to perceive recovery efforts positively and maintain favorable attitudes toward the organization. Customer satisfaction represents the cumulative evaluation of service experiences and reflects whether organizational performance meets or exceeds customer expectations. Customers who remain satisfied despite experiencing service failures are generally more forgiving and more willing to continue their relationships with the organization. The strong effect identified in this study suggests that customer satisfaction not only serves as an outcome of high-quality service but also functions as a critical factor supporting successful service recovery. Organizations should therefore continuously monitor customer satisfaction through surveys, complaint analyses, and customer feedback systems. Understanding customer expectations enables organizations to design recovery strategies that align with customer needs and improve overall service experiences. Maintaining high customer satisfaction before service failures occur may also increase customer tolerance when unexpected problems arise.

The combined influence of responsiveness, empathy, reliability, and customer satisfaction further demonstrates that effective service recovery requires a comprehensive rather than isolated managerial approach. Although each variable independently contributes to recovery effectiveness, their combined explanatory power indicates that successful recovery depends upon the interaction of operational efficiency, emotional support, dependable service

delivery, and positive customer evaluations. Organizations focusing exclusively on one aspect while neglecting others may fail to maximize recovery performance. For example, responding quickly without demonstrating empathy may leave customers feeling ignored emotionally, while empathetic communication without reliable corrective action may fail to restore customer trust. Similarly, reliable solutions alone may not completely satisfy customers if complaint responses are excessively slow or poorly communicated. Therefore, organizations should integrate all dimensions into a unified service recovery framework that balances technical competence with interpersonal relationship management.

From a theoretical perspective, the findings support service quality theory by confirming that multiple service quality dimensions contribute significantly to service recovery effectiveness. The study also extends existing literature by simultaneously examining responsiveness, empathy, reliability, and customer satisfaction within a single regression model. While previous studies often investigated these variables independently or focused only on selected dimensions, the present study demonstrates their complementary roles in explaining successful recovery outcomes. The relatively high coefficient of determination further suggests that integrating service quality dimensions with customer satisfaction provides a comprehensive explanation of customers' recovery evaluations. Future researchers may expand this framework by incorporating additional constructs such as perceived justice, trust, customer loyalty, switching intention, or customer engagement to develop more comprehensive service recovery models across different industries and cultural contexts.

The practical implications of this study are equally significant for managers and service organizations. First, organizations should prioritize employee responsiveness by implementing rapid complaint management systems and providing employees with sufficient authority to make immediate recovery decisions. Second, employee development programs should include communication and emotional intelligence training to strengthen empathetic interactions with customers. Third, management should continuously evaluate service reliability by monitoring compliance with recovery procedures and ensuring that promised corrective actions are consistently delivered. Finally, organizations should establish systematic customer satisfaction measurement programs to identify emerging service problems before they negatively influence long-term customer relationships. Digital technologies, including customer relationship management systems and online feedback platforms, may facilitate real-time complaint monitoring and improve organizational responsiveness while providing valuable information for continuous service improvement.

Despite the valuable contributions of this study, several limitations should be acknowledged. First, the cross-sectional research design captures customer perceptions at a single point in time, limiting the ability to establish causal relationships over extended periods. Longitudinal studies may provide deeper insights into how customer perceptions of service recovery evolve after repeated service interactions. Second, the study focuses on a specific service context, which may limit the generalizability of the findings to other industries or geographic regions. Third, the study relies on self-reported questionnaire data, making the results susceptible to response bias and subjective perceptions. Future research may combine survey data with organizational performance indicators or qualitative interviews to obtain a more comprehensive understanding of service recovery processes.

4. Conclusion

This study examined the influence of responsiveness, empathy, reliability, and customer satisfaction on service recovery effectiveness using a quantitative approach. The findings indicate that all four variables have positive and statistically significant effects on service recovery effectiveness, both individually and simultaneously. Among these factors, customer satisfaction emerged as the strongest predictor, followed by reliability, responsiveness, and empathy, demonstrating that both technical service quality and interpersonal interactions are essential for successful service recovery. The regression model further revealed that these variables collectively explained a substantial proportion of the variance in service recovery effectiveness, highlighting their importance in shaping customers' evaluations of recovery efforts. These findings suggest that organizations should adopt a comprehensive service recovery strategy that emphasizes prompt responses, empathetic communication, dependable service delivery, and continuous improvement of customer satisfaction. By strengthening these dimensions, organizations can enhance customer trust, foster long-term loyalty, and improve overall service performance. Future studies are encouraged to examine additional factors, such as perceived justice, trust, customer loyalty, or organizational commitment, using different research settings and longitudinal designs to provide a broader understanding of service recovery effectiveness.

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