



Exploring the Impact of CRM Strategies on Customer Loyalty with the Mediating Role of Relationship Quality

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ABSTRACT: The main goal of this study is to decode the complex connections between Consumer relationship marketing strategies (CRMTs), consumer loyalty, and the critical function of relationship quality (Customer trust) as a mediator. Data were collected from 792 students using mobile for communication and other purposes through a carefully structured questionnaire. The study focused on three key consumer relationship marketing strategies namely service quality, price perception and value offer and examined their effects on customer loyalty. The deployment of statistical tools, including descriptive statistics, correlation analysis, and regression analysis, has provided a robust foundation for these conclusions. The results showed that these strategies have a noteworthy impact on customer loyalty, indicating that they are crucial in forming and sustaining customer loyalty in the ever-changing mobile telecom market.

In addition, the study examined the mediating role of relationship quality through customer trust using the Sobel test. This analysis provided deeper insight into the underlying relationships. The results highlighted relationship quality as a key mediator between customer loyalty and the proposed marketing strategies, showing that customer trust significantly shapes the impact of these strategies on loyalty.

Finally, the study not only provided important insights into the factors influencing customer loyalty in the mobile telecom industry but also emphasised the multifaceted relationships between relationship marketing approaches and the role of relationship quality as a moderator. These findings are significant for industry practitioners because they provide actionable knowledge to improve and maximise client loyalty methods in the highly competitive mobile telephony market.

KEYWORDS: Customer loyalty, Relationship marketing tactics, Relationship quality, Regression analysis, Mediation, SOBEL test, Telecom industry.

1. INTRODUCTION

India's mobile communications story began in the 1990s with a single call and cumbersome phones. Private players, such as Airtel and Reliance Jio, emerged in the 2000s, fuelling intense competition and making mobile services extremely affordable. With the introduction of Reliance Jio's 4G data plan in 2016, India became a global mobile broadband monster with over 1.15 billion users (TRAI, 2022). The mobile service industry in India is extremely competitive, with major competitors vying for the top position. By keeping costs low, they encourage more people to use mobile phones and offer some of the most affordable data plans. However, because they are constantly trying to save on expenses, the network's quality may suffer. Consumers benefit from this fierce competition because it drives innovation and lowers prices. It is challenging for businesses, however, as they fight for every client in a competitive market. The most important issue for sellers is not only providing excellent, high-quality products or services but also retaining loyal customers who will contribute long-term profit to organisations (Tseng, 2007). As a result, relationship marketing (RM) has emerged as an alternative method for businesses to develop strong and long-term relationships with their customers. Relationship marketing, as part of marketing strategy, seeks to acquire and retain customers by providing high-quality customer service, and has thus become one of the keys to achieving strong competitiveness in today's markets, due to its implications for market access, the generation of repeat purchases, the creation of exit barriers, and the belief that it benefits all parties (Andaleeb, 1996). Knowing that it is less expensive to retain a customer than to acquire a new one, most managers place a high value on keeping their customers coming back for more. As a result, relationship marketing began to dominate the marketing field and has received a lot of attention in the last few decades, both in academics and in practice (Egan, 2001).

In the business world, an organisation must cultivate sincere relationships with a range of stakeholders, including suppliers, consumers, workers, distributors, middlemen, and retailers. A company's relationship capital is made up of a variety of factors,



including trust, satisfaction, knowledge, service quality, brand image etc. As Kotler (2000) pointed out, this intangible asset—which is based on strong relationships—has greater value than actual assets and ultimately determines the company's future worth. Hence, organizations consistently question the efficacy of relationship marketing strategies in fostering customer loyalty. If the answer is affirmative, it is necessary to find strategies that can streamline and reinforce this loyalty. As a result, one of the key goals of this research was to examine and improve our understanding of how relationship marketing methods affect customer loyalty, with a particular emphasis on the mediating effect of relationship quality (RQ).

The remainder of the research paper is structured as follows: Section 2 offers an overview of relevant literature. Section 3 outlines the conceptual framework employed in this research. In Section 4, a concise explanation of the theoretical framework pertinent to the study is provided. The selection of data and variables for the present study is detailed in Section 5, while Section 6 presents the results and ensuing discussion. Finally, Section 7 brings the study to a conclusion.

2. REVIEW OF RELEVANT LITERATURE

The literature review functions as a road map, providing a synthesis of existing information, directing research by identifying major discoveries, debates and gaps and creating the framework for the current investigation.

2.1 Relationship Marketing Strategies

Relationship marketing, according to Berry and Parasuraman (1991), is concerned with the acquisition, fostering, and retention of customer relations. It evolved as the dominating concept in strategic marketing planning in the final decade of the twentieth century, embracing both industrial and consumer marketing sectors (Tseng, 2007). Various definitions have been explored to elucidate relationship marketing, including (a) the identification, establishment, preservation, and enhancement of trust-based relationships with customers and stakeholders (Gummesson, 1994), (b) the goal of retaining customers and improving connections with them (Fontenot and Hyman, 2004), (c) the comprehension and management of relationships between a customer and a supplier (Shell by D. Hunt et al., 2006), (d) the endeavour to engage customers (Tseng, 2007) and (e) According to Kotler and Keller (2009), customer relationship marketing is the process of recruiting, growing, and retaining consumers.

At its core, relationship marketing comprises a series of actions aimed at establishing long-term and mutually beneficial connections between a business and its customers, with the ultimate aim of creating benefits for both parties (Lovelock and Wright, 2002). Its initiatives are typically designed to collect data, assisting businesses in identifying and retaining their most important customers, ultimately maximising revenue and customer value (Christy et.al 2018). Peng and Wang (2006) investigated the execution of methods relating to service quality, reputation (brand), pricing perception, and value propositions. Bansal et.al (2005) provide a broad perspective on relationship marketing methods, detailing 12 main aspects from which these tactics might be developed. Service quality, satisfaction, value, trust, commitment, pricing perception, alternative appeal, substitution attitude, subjective norms, switching costs, behaviour change, and the pursuit of diversity are examples of these elements.

Odekerken-Schroder et al. (2003), emphasize achieving loyalty is dependent on both effective relationship marketing tactics (RMT) and consumer personality, with different RMT approaches having different effects on perceived loyalty. The findings show that marketing techniques could be improved with practical aspects to promote consumer loyalty. Several studies have found links between relationship marketing methods and customer loyalty, emphasising the roles of customer satisfaction and trust as mediators in these relationships. Parasuraman et al (1988) Aydin and Zer (2005) and Ismail et al (2006), all discovered that service quality has a direct impact on customer satisfaction and trust. Studies conducted by Peng and Wang (2005), Kim et al. (2008) and Cheng et al. (2008) indicate that price perception positively impacts customer satisfaction and trust. According to Grönroos (2000) and O'Loughlin et al. (2004) research, customers are attracted to brands they perceive as inclusive, providing satisfaction and instilling trust in them. These research works highlight the importance of the RMT's.

2.2 Consumer trust

According to Mayer et al. (1995), trust is the ability of one party to remain helpless in the face of another's undertakings with the expectation that, independent of the other party's capacity for control, the other party will fulfil a certain duty required by the trustor. Kim et al. (2012) define trust as the conviction that a certain seller is dependable. Customer trust is defined by Moorman et al. (1992) and Ganesan (1994) as the customer's faith in the supplier's kindness, integrity, and ability to behave in the best interests of the particular relationship. Ganesan (1994) states that honesty is a component of trust, meaning that the party putting their faith in



a relationship is dependent on their relationship partner's credibility. Additionally, trust is defined by Anderson and Weitz (1992) as having two fundamental elements: honesty, which implies that the party putting their trust in the relationship partner must be credible, and the belief that the relationship partner will act benevolently in ways that either directly or indirectly affect the relationship. Scheer and Stern (1992) assert that trust is a fundamental element of the customer relationship marketing idea because it demonstrates one party's readiness to take a risk and gives the other party confidence that they will fulfil their obligations going forward.

2.3 Consumer loyalty

"Continuous repurchase of (or ongoing supporting behaviour towards) a favoured product or service, regardless of other possibilities and/or marketing efforts to drive switching to competitors" is how Hur et al. (2010) defined loyalty. Oliver's (1999) definition of loyalty and this one are comparable in that they both highlight the desire to maintain long-term patronage in the face of competing market options. Hur et al. (2010) and Oliver (1999), define customer loyalty in their paper as the persistent choice to continue using (or supporting) a preferred telecommunication service provider in the face of alternative options and/or marketing campaigns aimed at encouraging customer switching. Effectively implemented customer retention tactics can provide an organisation with a competitive edge when rival services pose a threat to consumer loyalty, as is the case in the Indian telecom industry. According to Ehrheld and Schefter (2000), businesses with high retention rates yield the highest return on investment because their devoted clientele spreads good word of mouth and refers new business to prospective clients (Hur et al., 2010), which in turn drives down expenses. Businesses that cultivate customer loyalty secure several profitable connections with their business, thereby outpacing inexpert rivals (Reichheld and Schefter, 2000). Therefore, losing customers is a concern that telecom companies shouldn't ignore (Sweeney and Swait, 2008). Thus, cultivating a base of devoted customers is an essential tactical move to stay relevant in the fiercely competitive telecommunications industry today.

In the telecom industry, a lot of research has been done on customer loyalty (e.g. Izogo, 2015a; Tarus and Rabach, 2013; Kaur and Soch, 2012; Chen and Cheng, 2012; Edward and Sahadev, 2011; Hur et al., 2010; Lai et al., 2009; Sweeney and Swait, 2008; Gustafsson et al., 2005; Kim et al., 2004; Gerpott et al., 2001). Previous research has found several aspects of loyalty, but two perspectives—behavioural and attitudinal loyalty—dominate. While a behaviourally loyal consumer is willing and prefers to keep buying a specific brand, an attitudinally loyal customer goes above and beyond by promoting the brand through word-of-mouth and business referrals (Rauyruen and Miller, 2007). Customers who repurchase can change, but those who are attitudinally loyal are unlikely to do so. Additionally, committed customers see higher rewards from brand loyalty and higher dangers from switching brands (Evanschitzky et al., 2006). Rauyruen and Miller (2007) suggest that cultivating a devoted clientele entails not just retaining a large number of patrons over time, but also fostering relationships with them to stimulate repeat business and a higher degree of advocacy. Therefore, attracting recurring clients is insufficient for telecommunication service providers. Additionally, companies need to make sure that their clients are so emotionally invested in their brands that they not only make repeat purchases but also spread the word about them and recommend them to others. Accordingly, comprehensive loyalty metrics need to take into account behavioural and attitudinal viewpoints. The traditional method from earlier studies was used in this study, and loyalty was conceptualised to take into account both behavioural and attitudinal factors.

3. CONCEPTUAL FRAMEWORK

The proposed conceptual model is constructed based on the above literature review, and it is depicted in Fig.1 below.

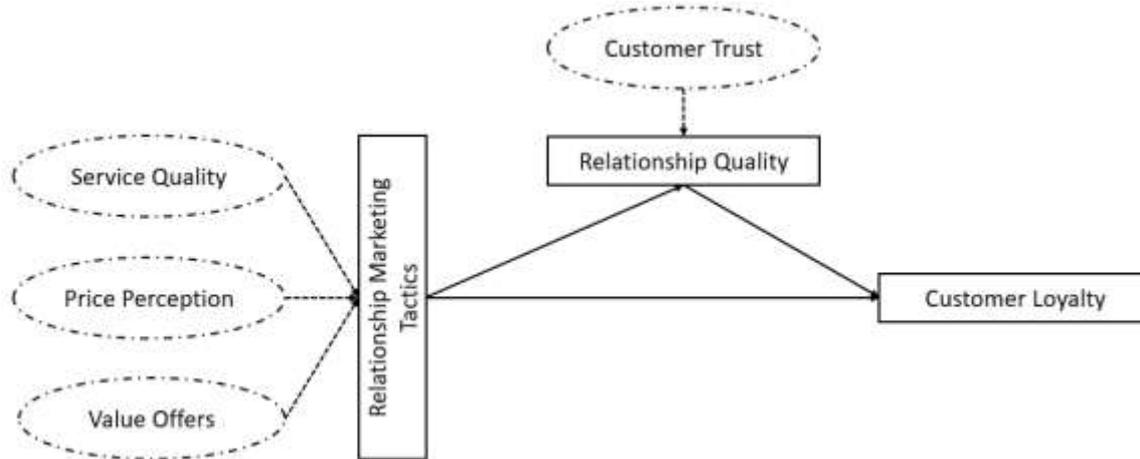


Fig. 1. Proposed theoretical model

3.1 Study Questions and Proposed Hypotheses

Although various relationship marketing tactics have been observed by service providers, not all have proven effective. The prevalence of switching behaviour among the majority of targeted customers is evident. As a result, the following research questions and hypotheses for this research are formulated:

Questions:

- Does the implementation of CRM strategies influence customer loyalty?
- Does the mediating role of relationship quality play a significant part in this relationship?

Null Hypotheses:

- The implementation of CRM strategies has no significant impact on customer loyalty.
- The mediating role of relationship quality does not play a significant part in the relationship between relationship marketing tactics and customer loyalty.

4. RESEARCH METHODOLOGY

This study adopted a cross-sectional survey research design, which enabled the collection of necessary primary data from target respondents in a single period for analysis and generation of findings. Because the study is from the perspective of the customer, the targeted population includes students who use mobile services from an Indian telecom service provider. The research was carried out through a survey that used quantitative methods. Previous research measurements were used to develop 26 items related to the variables of the questionnaire. Table 1 lists the selected variables with code, the number of questions under each variable and the sources that were used to develop the questions.

Table 1. Variable Selection: Items and Their Respective Sources

| Variables | Code | Items | Sources |
|------------------|------|-------|---|
| Service Quality | SQ | 6 | Parasuraman et al. (1988); Peng & Wang (2006) |
| Price Perception | PP | 5 | Peng & Wang (2006); Cheng et al. (2008) |
| Value Offers | VO | 4 | Zeithaml (1988); Peng & Wang (2006) |
| Customer Trust | CT | 5 | Morgan & Hunt (1994); Chu (2009) |
| Customer Loyalty | CL | 6 | De Wulf et al. (2001); Aydin & Özer (2005) |

* All variables are measured with five likert scale

Source: Author compilation



A pilot study with 50 participants from the target population was conducted to assess the reliability of the constructed questionnaire. This aimed to assess the survey instrument's internal consistency across each factor, including relationship marketing tactics, relationship quality, and customer loyalty. The reliability of the framed questionnaire was evaluated in the pilot study using Cronbach's Alpha test. Table 2 provides a summary of the instrument's dependability employed in this study.

Table 2. Internal Consistency Assessment Results

| Variables Code | Items | Cronbach's Alpha |
|----------------|-------|------------------|
| SQ | 6 | 0.817 |
| PP | 5 | 0.789 |
| VO | 4 | 0.834 |
| CT | 5 | 0.754 |
| CL | 6 | 0.802 |

Source: Author compilation

The pilot study's findings revealed high internal consistency for each variable (0.754 to 0.834), indicating that the survey questions were trustworthy and effectively measured the intended constructs. This preliminary investigation ensured the robustness of the measurement instrument before full-scale data collection, enhancing the overall quality and trustworthiness of the research findings.

4.1 Determination of Sample Size

The sample size for this study was determined utilizing the following formula.

$$n = \frac{Z^2 \times \hat{P} (1 - \hat{P})}{\epsilon^2}$$

Since we are unsure of the precise number of students who used mobile devices, the sample size was determined using an unlimited population, a confidence interval of 95%, a marginal error of 3.5%, and a population proportion of 50%. The calculated result was 784, and to account for potential missing or incomplete data, 850 questionnaires were distributed out of that 792 were received back with fulfilling all the criteria, representing a response rate of 93 per cent. Therefore, used 792 responses for the data analysis and this approach ensures statistical robustness.

4.2 Method of data collection

Purposive sampling was used to collect data, due to a lack of knowledge about the specific student population using mobile services from the telecom provider. This method allowed us to purposefully select participants who met specific criteria relevant to the research objectives, ensuring that the individuals chosen possessed valuable insights into the complexities of the relationship marketing variables under investigation.

4.3 Statistical Methods

The study aimed to provide a comprehensive understanding of the complex dynamics between relationship marketing, relationship quality, and customer loyalty by incorporating statistical methods. Each method played a unique role in revealing patterns, assessing relationships, and investigating the intricate interplay of variables in the context of the research objectives. To summarise and present the main features of the dataset, descriptive statistics were used, providing an overview of the central tendency, dispersion, and variable distribution.

Correlation analysis was used to assess the strength and direction of relationships between variables, as well as to investigate the relationships between relationship marketing tactics, relationship quality, and customer loyalty. This method aids in the identification of potential patterns and connections within the dataset.

The relationships between the independent variables (relationship marketing tactics and relationship quality) and the dependent variable (customer loyalty) were modelled using regression analysis. This enabled researchers to investigate the extent to which these variables predict customer loyalty and provided insights into the individual contributions of each factor.



The SOBEL mediation test was used to investigate the role of relationship quality as a mediator. This test assesses the significance of an independent variable's indirect effect on a dependent variable via a mediator. Also, aids in determining whether the relationship between relationship marketing tactics and customer loyalty is significantly mediated by relationship quality in this study. This statistical approach deepens the analysis by revealing the underlying mechanisms that influence customer loyalty.

5. FINDINGS AND INTERPRETATIONS

This section provides insights into the study's findings, including demographic information, variable correlations, and relationships involving independent, mediating, and dependent variables.

5.1 Characteristics of Respondents

From Table 3, the respondents represent a diverse demographic profile across multiple demographic categories. The gender distribution is 50.9% male and 49.1% female, indicating nearly equal representation. Academic backgrounds range from 35.2% in the arts, 31.2% in science, 21.1% in commerce, and 12% in management. Concerning mobile operators, Jio and Airtel have a clear lead, accounting for nearly 87% of students' choices, with 46.1% choosing Jio and 41.5% choosing Airtel. The fact that these two operators were used the most indicates that they were well-liked by the student community. This diverse participant profile ensures a complete representation, allowing for a nuanced exploration of the study variables across different segments of the population.

Table 3. Respondents Overview

| Characteristics | Classification | Frequency | |
|-------------------|----------------|-----------|--|
| Gender | Male | 403 | |
| | Female | 389 | |
| Department | Arts | 283 | |
| | Science | 247 | |
| | Commerce | 167 | |
| | Management | 095 | |
| Operators | Jio | 365 | |
| | Airtel | 329 | |
| | VI | 067 | |
| | BSNL | 031 | |

Source: Author compilation



5.2 Descriptive Analysis

According to Table 4, the study examined five variables, with a focus on key summary statistics. The mean scores for the variables ranged from 12.47 (VO) to 19.25 (SQ). This indicates a significant inequality in the study variables' central tendencies. The study variables' standard deviation (SD) values show varying degrees of dispersion around the mean. SQ has the highest SD (4.662), indicating relatively high response variability, whereas VO has the lowest SD (3.121), indicating lower variability. Other variables are all in the middle of the dispersion range. Skewness, a measure of distribution asymmetry, showed values ranging from -0.238 to -0.416. The negative skewness values indicate a slight leftward tail in the distribution, indicating a skewed data tendency. When compared to a normal distribution, negative kurtosis values indicate relatively lighter tails. In a nutshell, these descriptive statistics provide a thorough overview of the central tendency, variability, asymmetry, and distribution shape across the variables studied, providing valuable insights for further analysis and interpretation.

Table 4. Summary Statistics

| Code | Min | Max | Mean | SD | Skewness | Kurtosis |
|------|-----|-----|-------|-------|----------|----------|
| SQ | 9 | 30 | 19.25 | 4.662 | -.238 | -.990 |
| PP | 8 | 24 | 16.39 | 3.754 | -.386 | -.856 |
| VO | 6 | 20 | 12.47 | 3.266 | -.355 | -.748 |
| CT | 4 | 23 | 16.23 | 3.798 | -.416 | -.722 |
| CL | 8 | 28 | 19.10 | 4.454 | -.347 | -.787 |

Source: Author compilation

5.3 Detection of Outliers

The computed box plots in Fig. 2 revealed that no observations fell outside the whiskers, indicating that the dataset was outliers-free. This is a good result for the regression analysis because it shows that there are no extreme values, which could distort the model assumptions and results. By making regression coefficient estimates less susceptible to the influence of extreme values, the absence of outliers improves the reliability, validity of statistical inferences, predictability, and the assumptions required for robust regression analysis. Also, the dataset's integrity increases trust in the subsequent regression results.

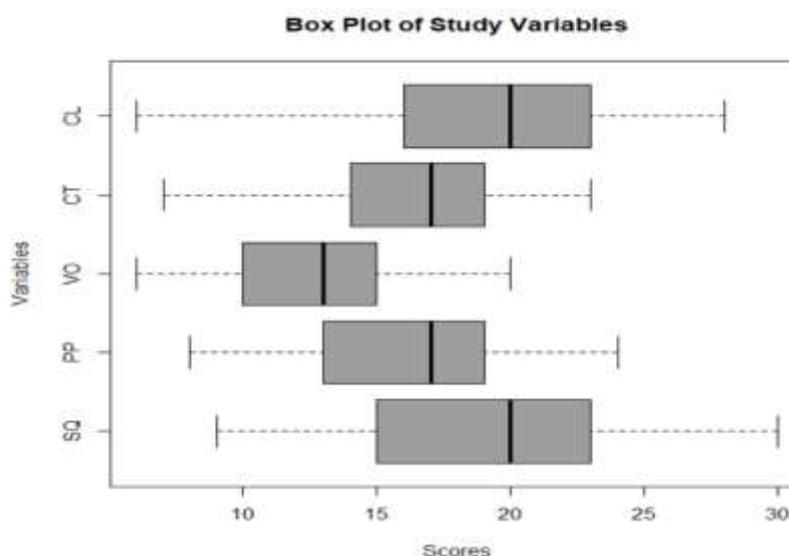


Fig. 2. Boxplot Analysis

Source: Author compilation

5.4 Exploring Variable Relationships

Finding the relationship between variables in statistical analysis entails examining patterns, dependencies, and trends using techniques like correlation and regression, which offer vital insights into the dynamics of the dataset.

5.4.1 Variable's Association

Correlation analysis is a statistical technique for determining the strength and direction of a relationship between two quantitative variables. The degree of link is indicated by the correlation coefficient, which ranges from -1 to +1. Positive numbers indicate a positive correlation, negative values denote a negative correlation and zero denotes no linear association, Scatter plots depict this link visually. It is appropriate to use parametric Karl-Pearson correlation if the dataset is continuous and the variables are linear. The formula is as follows:

$$r = \frac{\sum(x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum(x_i - \bar{x})^2} \sqrt{\sum(y_i - \bar{y})^2}}$$

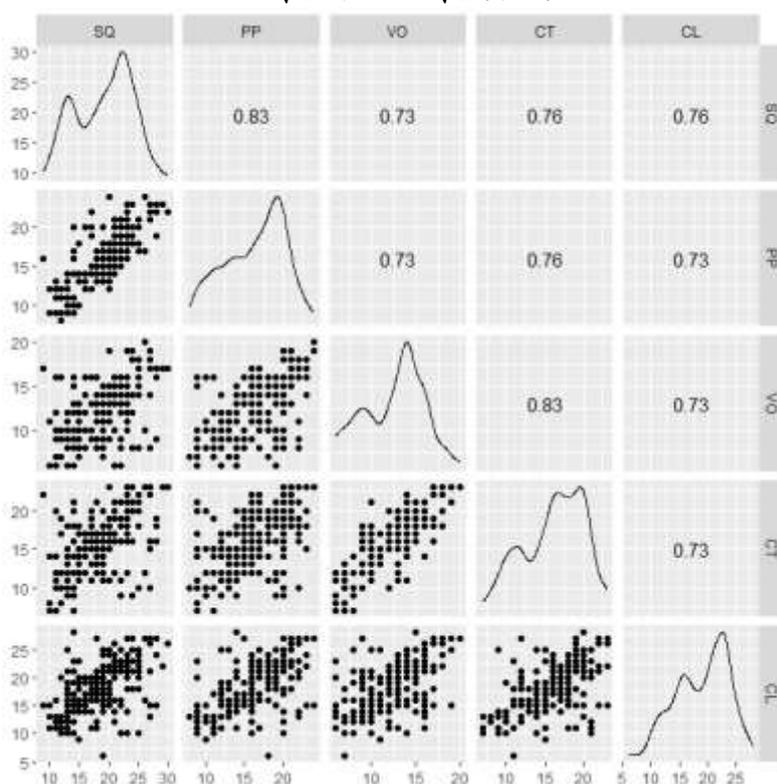


Fig. 3. Relationships between Variables

Source: Author compilation

The study variables' Karl-Pearson correlation coefficients, scatter plots, and smooth frequency curves are shown in Fig. 3. Interestingly, scatter diagrams show that all variables have positive linear relationships, with correlation values ranging from 0.73 (SQ-VO, VO-PP and CT-CL) to 0.83 (SQ and PP). Each variable has a strong correlation with the dependent variable (CL). The correlation values of relationship marketing strategies (SQ, PP and VO), correlate with CL at 0.73 and 0.76 respectively. Relationship Quality, the mediator variable (CT), correlates with CL at 0.73. The left-tailed smooth frequency curve indicates slight asymmetry and lighter tails, which is in line with the negative skewness and negative kurtosis values. Overall, the data shows a strong relation between the variables, highlighting the importance of relationship marketing strategies and the function that relationship quality plays as a mediator of customer loyalty. The distribution of the data is better understood when considering the left-tailed smooth frequency curve, which points to a tendency for responses to cluster towards higher values.



5.5 Unravelling Variable Impacts

Regression analysis is a statistical approach employed to investigate the relationship between one dependent variable and one or more independent variables. The fundamental formula of linear regression is represented as

$$Y = X\beta + \varepsilon$$

where Y is the dependent variable, X is the independent variable, β is the parameters (unknown to be estimated) and ε is the error term. Key assumptions include linearity, independence of errors, homoscedasticity (constant variance of errors), and normality of errors. Validating these assumptions ensures the reliability and accuracy of regression analysis results.

5.5.1 Estimating the Impact of CRM Strategies on Customer Trust

The model summary contains three models that were developed using the regression model. The first stage of the hierarchy, known as Model 1, uses only VO as predictors. Model 2 represents the second stage, where VO and SQ are predictor variables. The third and final stage, or "Model 3," contains all the important predictor variables (Table 5).

Table 5. Parameter Estimates for CRM Strategies

| Dependent: CT | | | | | | | |
|-----------------|----------|---------------|---------------------------|----------|-----------|-----------|------------|
| | b | SE (b) | β | t | LB | UB | VIF |
| Constant | 2.035 | 0.315 | | 6.453** | 1.416 | 2.654 | |
| VO | 0.614 | 0.033 | 0.528 | 18.444** | 0.550 | 0.677 | 2.423 |
| SQ | 0.182 | 0.028 | 0.224 | 6.590** | 0.128 | .236 | 3.560 |
| PP | 0.186 | 0.034 | 0.183 | 5.381** | 0.118 | 0.253 | 3.590 |

$R = 0.826, R^2 = 0.682, \Delta R^2 = 0.682$ for step 1

$R = 0.858, R^2 = 0.736, \Delta R^2 = 0.735$ for step 2

$R = 0.863, R^2 = 0.745, \Delta R^2 = 0.744$ for step 3

F-Statistics: 767.240**

Durbin-Watson: 2.089

Breusch-Pagan test: $\chi^2 = 4.7137, p = 0.194$

Note: $\Delta R^2 =$ Adjusted R Square, * $p < 0.05$, ** $p < 0.01$

Final Model: $CL = 2.035 + 0.614(VO) + 0.182(SQ) + 0.186(PP)$

Source: Author compilation

Based on Table 5, the highly significant F-value (767.240, $p < 0.01$) supports the regression analysis results, which points to a well-fitted model. Suggesting that the CRM strategies (SQ, VO and PP) collectively have a significant impact on explaining the variation in the RQ(CT).

The R-square of 0.682 in Model 1 implies that VO accounts for 68.2% of the variation in the CT. The R-square rises to 0.736 in Model 2, which adds SQ in addition to VO. This indicates that the model explains 73.6% of the variance, or 5.4% more in the R-squared value, which highlights the second variable's increased explanatory power. Finally, Model 3, which adds PP to VO and SQ, yields an R-square of 0.745. This indicates that, with a smaller increase of 0.9 %, the combined effect of SQ, VO, and PP accounts for roughly 74.5% of the variability in the CT, representing the marginal contribution of the third variable. The increasing R-square values indicate that the overall explanatory power of the model grows with each variable.

Moving to the coefficient values, the constant term of 2.035 represents the estimated intercept when all predictor variables are zero. The significant t-value (6.453, ($p < 0.01$)) for the constant strengthens its importance. Upon closer inspection of the predictor variables, it can be seen that VO, SQ, and PP all have highly significant coefficients ($p < 0.01$), indicating a substantial impact on the CT. In particular, assuming all other variables remain constant, a one-unit increase in VO is associated with an increase in the CT of about 61.4%. Likewise, SQ and PP are 18.2% and 18.6% respectively. Overall, the model containing VO, SQ, and PP as predictors is statistically strong and accounts for a sizable percentage of the variance in the CT and each variable makes a substantial contribution to the model.

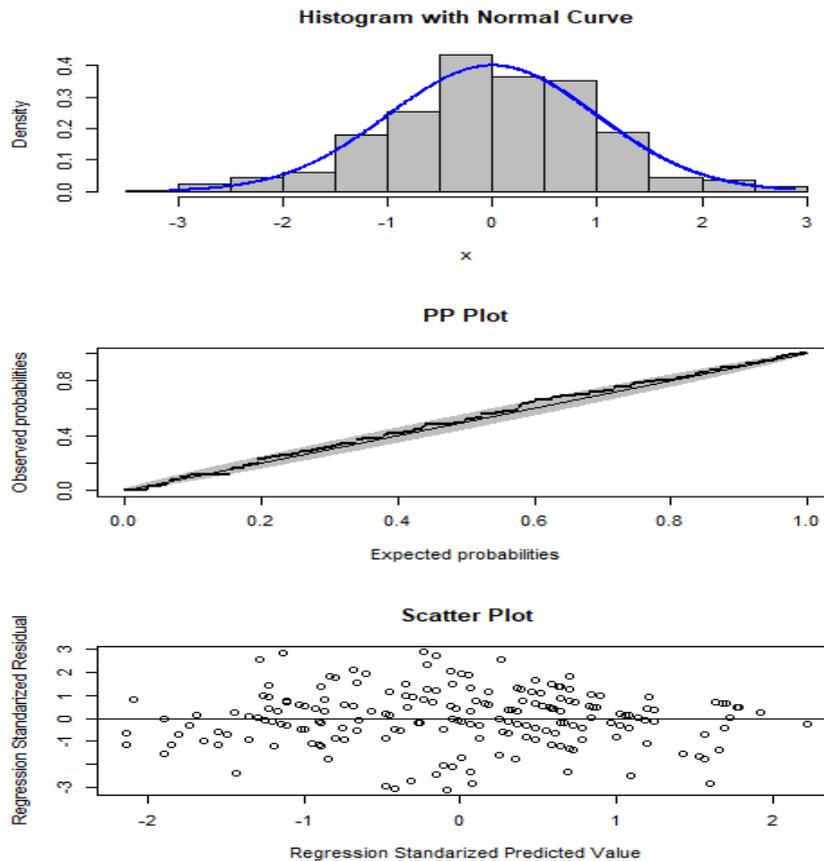


Fig. 4. Residual Plots of CRM Strategies on Customer Trust

Source: Author compilation

The regression analysis model appears to demonstrate good accuracy. The scatter plot (Fig. 4) shows a linear relationship between the CT and the CRM strategies (SQ, VO, and PP). Variance inflation factor (VIF) values of VO, SQ, and PP (2.423, 3.560, and 3.590) fall below acceptable bounds (< 4), indicating low multicollinearity at an acceptable level. The residuals have a normal distribution, according to the histogram with the normal curve and pp plot (Fig. 4). There is no noticeable autocorrelation in the residuals, according to the Durbin-Watson test result of 2.089. The results of the Breusch-Pagan test ($\chi^2 = 4.7137$, $P = 0.194$) and the scatter diagram for the standardised residuals and projected values (Fig. 4) do not indicate any pattern, supporting the homoscedasticity assumption. Overall, these results indicate that the regression model is appropriate and meets essential assumptions.

5.5.2 Estimating the Impact of RQ (CT) on Customer Loyalty

According to Table 6, the highly significant F-value (922.851, $p < 0.01$) supports the regression analysis results, which points to a well-fitted model. Suggesting that the CT have a significant impact on explaining the variation in the CL. The R-square of 0.539 implies that CT accounts for 53.9% of the variation in the CL. Moving to the coefficient values, the constant term of **20.704** represents the estimated intercept when all predictor variables are zero. The significant t-value (**9.962**, ($p < 0.01$)) for the constant strengthens its importance. Upon closer inspection of the predictor variables, it can be seen that CT have highly significant coefficients ($p < 0.01$), indicating a substantial impact on the CL.

Table 6. Parameter Estimates for RQ

| Dependent: CL | | | | | | |
|---------------|--------|--------|---------|----------|-------|-------|
| | b | SE (b) | β | t | LB | UB |
| Constant | 20.704 | 2.078 | | 9.962** | 4.199 | 6.054 |
| CT | .356 | .024 | .713 | 14.698** | 0.805 | 0.916 |

$R = 0.734, R^2 = 0.539, \Delta R^2 = 0.538$

F-Statistics: 922.851**

Durbin-Watson: 1.916

Breusch-Pagan test: $\chi^2 = 0.3580, p = 0.5496$

Note: $\Delta R^2 =$ Adjusted R Square, * $p < 0.05, **p < 0.01$

Final Model: $CL = 20.704 + 0.356(CT)$

Source: Author compilation

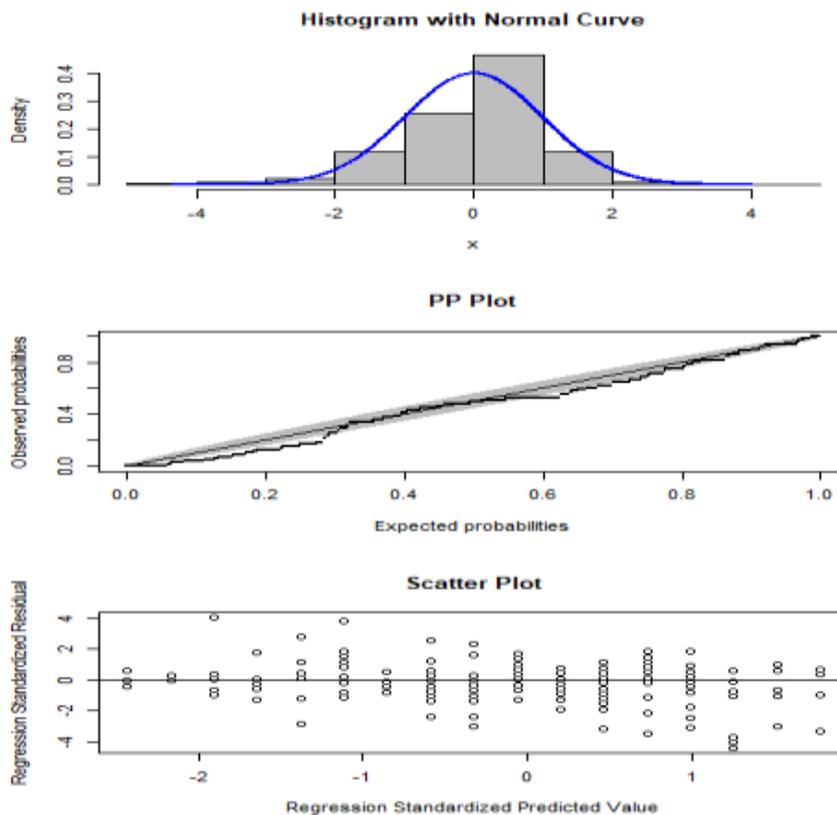


Fig. 5. Residual Plots of RQ on Customer Loyalty

Source: Author compilation

The regression analysis model appears to demonstrate good accuracy. The scatter plot (Fig. 5.) shows a linear relationship between the CL and the CT. The residuals have a normal distribution, according to the histogram with the normal curve and pp plot (Fig. 5). There is no noticeable autocorrelation in the residuals, according to the Durbin-Watson test result of 1.916. The results of the Breusch-Pagan test ($\chi^2 = 0.3580, P = 0.538$) and the scatter diagram for the standardised residuals and projected values (Fig. 5) do not indicate any pattern, supporting the homoscedasticity assumption. Overall, these results indicate that the regression model is appropriate and meets essential assumptions.



5.5.2 Estimating the Impact of CRM Strategies without and with RQ on Customer Loyalty

The model summary contains two models that were developed using the regression model. Model 1 doesn't include the RQ (CT), whereas Model 2 includes to the regression analysis (indicated through #).

Based on Table 7, in both the models (1 and 2) the highly significant F-value (486.578, #378.656, $p < 0.05$) supports the regression analysis results, which points to a well-fitted model. Suggesting that the independent variables (SQ, VO, PP and CT) collectively have a significant impact on explaining the variation in the CL.

Table 7. Parameter Estimates for CRM Strategies without and with RQ

| Dependent: CL | | | | | | | |
|---------------|-------|--------|---------|---------|-------|-------|-------|
| | b | SE (b) | β | t | LB | UB | VIF |
| Constant | 3.180 | 0.434 | | 7.334** | 2.329 | 4.031 | |
| VO | 0.426 | 0.045 | 0.313 | 9.519** | 0.338 | 0.514 | 2.423 |
| SQ | 0.337 | 0.038 | 0.353 | 8.871** | 0.263 | 0.412 | 3.560 |
| PP | 0.251 | 0.047 | 0.212 | 5.296** | 0.158 | 0.344 | 3.590 |
| | | | | | | | |
| #Constant | 2.741 | 0.440 | | 6.234** | 1.878 | 3.604 | |
| #VO | 0.211 | 0.048 | 0.178 | 4.424** | 0.189 | 0.398 | 3.722 |
| #SQ | 0.298 | 0.039 | 0.312 | 7.720** | 0.222 | 0.374 | 3.756 |
| #PP | 0.294 | 0.053 | 0.215 | 5.511** | 0.117 | 0.305 | 3.515 |
| #CT | 0.216 | 0.048 | 0.184 | 4.460** | 0.121 | 0.311 | 3.921 |

$R = 0.806, R^2 = 0.649, \Delta R^2 = 0.648$

$R_{\#} = 0.811, R_{\#}^2 = 0.658, \Delta R_{\#}^2 = 0.656$

$F - Statistics = 486.578 **, F - Statistics_{\#} = 378.656 **$

$Durbin - Watson = 1.769, Durbin - Watson_{\#} = 1.766$

Breusch - Pagan test: $\chi^2 = 7.2941, p = 0.063$

Breusch - Pagan test_#: $\chi^2 = 6.9594, p = 0.1382$

Note: $\Delta R^2 =$ Adjusted R Square, * $p < 0.05$, ** $p < 0.01$, # = with RQ

Final Model:1: $CL = 3.180 + 0.337(SQ) + 0.426(VO) + 0.251(PP)$

Final Model:2: $CL = 2.741 + 0.298(SQ) + 0.211(VO) + 0.294(PP) + 0.216(CT)$

Source: Author compilation

The R-square in Model 1 of 0.649 indicates that CRM strategies account for 64.9 percent of the variation in the CL. Model 2, which incorporates RQ (CT) into CRM strategies, produces an R-square of 0.658. This means that, with a 0.9 per cent rise, the combined effect of CRM strategies and RQ accounts for around 65.8% of the variability in the CL, representing the RQ's marginal contribution. The growing R-square values suggest that the model's overall explanatory power increases with each variable.

When all predictor variables are zero, the estimated intercept is expressed by the constant terms of models 1 and 2 are 3.180 and #2.741 respectively. The constant's significant t-value (7.334, #6.234 ($p < 0.01$)) emphasises its importance. A closer examination of the predictor variables reveals that CRM strategies and RQ all have highly significant coefficients ($p < 0.01$), indicating a significant impact on the CL. Specifically, in model 1, assuming all other variables remain constant, a one-unit increase in SQ is related with a 34% rise in CL. Likewise, VO and PP are 43% and 25% respectively. Similarly, the SQ, VO, PP, and CT for model 2 are 30%, 21%, 30%, and 22%, respectively. Overall, models 1 and 2 using SQ, VO, PP, and CT as predictors are statistically strong and account for a sizeable percentage of the variance in the CL, and each variable contributes significantly to the model.

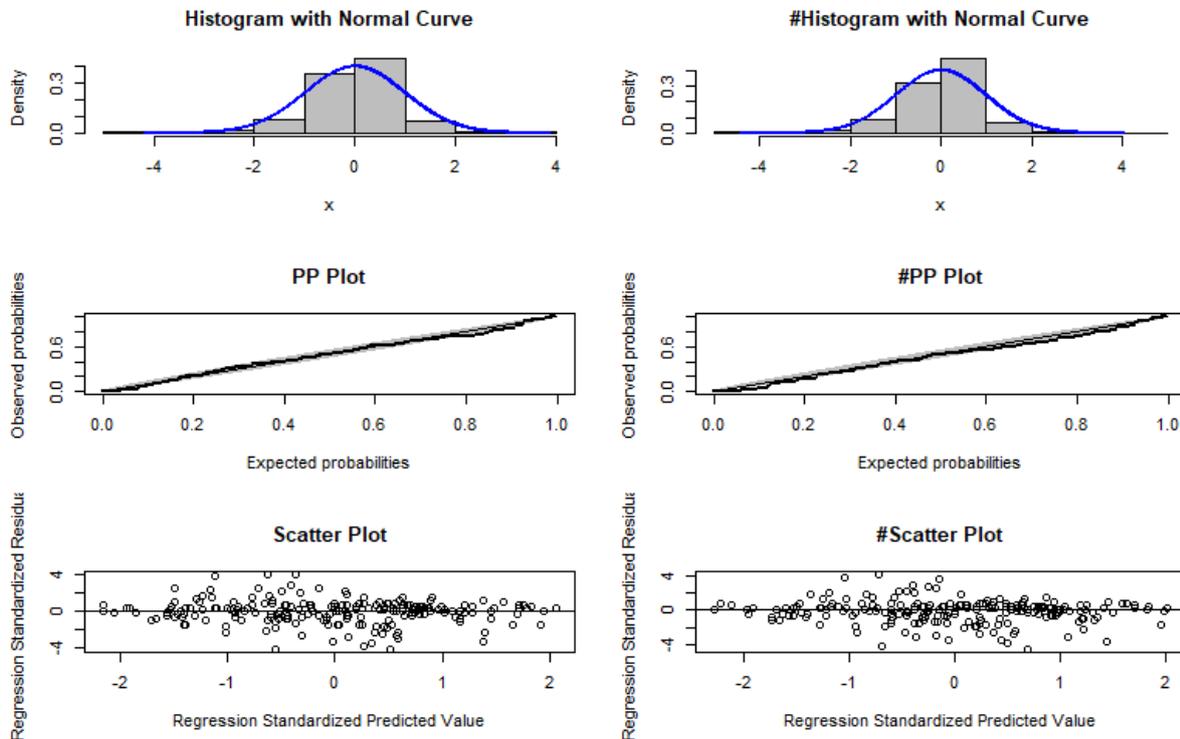


Fig. 6. Residual Plots of CRM Strategies and RQ on Customer Loyalty

Source: Author compilation, # - With RQ

The regression analysis models (1 and 2) appear to be accurate. Fig. 6 depicts a linear relationship between the CL and the CRM strategies (SQ, VO, and PP), as well as RQ (CT). CRM strategy VIF values (3.50, 2.423, and 3.560, respectively) under model 1 and CRM strategies with RQ (model 2) fall below acceptable bounds (<4), suggesting minimal multicollinearity at an acceptable level. The residuals have a normal distribution, according to the histogram with the normal curves and pp plots (Fig. 6). According to the Durbin-Watson test results of 1.769 and 1.766, there is no discernible autocorrelation in the residuals (model 1 and 2). The Breusch-Pagan test results ($\chi^2 = 7.294$, $p = 0.063$; $\chi^2 = 6.9594$, $p = 0.1382$), as well as the scatter diagram for the standardised residuals and projected values (Fig. 6), show no pattern, validating the homoscedasticity assumption. In conclusion, the findings show that the regression model is adequate and meets all of the necessary assumptions.

5.6 The Mediation Analysis

The second goal of this research is to determine whether relationship quality (CT) plays significant role as mediator. This was identified using the SOBEL test. It explicitly assesses whether the indirect effect of an independent variable on a dependent variable via a mediator variable differs significantly from zero. The Sobel test generates a z-score, whose significance indicates the strength of the mediating effect. Sobel (1982) The formula is

$$Z = \frac{a * b}{\sqrt{b^2 * s_a^2 + a^2 * s_b^2}}$$

Mediation analysis summary is presented in Table 8. The hypothesis for mediation analysis is CT mediates the relationship between RMT's (VO, SQ, PP) and CL. The results revealed a significant indirect effect of RMT's (VO, SQ, PP) on CL ($b(\text{VO}) = 0.133$, $b(\text{SQ}) = 0.039$ and $b(\text{PP}) = 0.040$, $t(\text{VO}) = 4368^{**}$, $t(\text{SQ}) = 3.671^{**}$ and $t(\text{PP}) = 3.441^{**}$), supporting the hypothesis. Furthermore, the direct effect of RMT's on CL in presence of the mediator was also found significant ($b(\text{VO}) = 0.294$, $p < 0.001$, $b(\text{SQ}) = 0.298$, $P < 0.000$ and $b(\text{PP}) = 0.211$, $p < 0.002$). Hence, CT partially mediated the relationship between RMT's and CL.



Table 8. Mediation analysis summary

| Relationship | Total effect | Direct effect | Indirect effect | CI | | t | Conclusion |
|--------------|--------------|---------------|-----------------|-------|-------|---------|------------|
| | | | | LB | UB | | |
| VO→CT→CL | 0.426 | 0.294 | 0.133 | 0.073 | 0.192 | 4.368** | Partial |
| SQ→CT→CL | 0.337 | 0.298 | 0.039 | 0.018 | 0.060 | 3.671** | Partial |
| PP→CT→CL | 0.251 | 0.211 | 0.040 | 0.017 | 0.063 | 3.441** | Partial |

6. CONCLUSION

The goal of this study was to investigate how RMTs — namely, service quality, price perception, and value offers affect customer trust and loyalty. Additionally, the study focused on the relationship quality of customer trust as a mediator between RMTs and customer loyalty in the Indian mobile telecommunications industries, with the target population being the student population in Madurai and Coimbatore city.

The study's finding that service quality and price perception have a lesser relationship with customer trust suggests a need for companies to enhance service quality and price perception, Indian mobile telecommunication companies should focus on improving network reliability and speed, invest in customer service training, and ensure prompt issue resolution. Moreover, offering transparent pricing plans and value-added services can positively influence price perception and increase perceived value for customers. Continuously monitoring customer feedback and market trends is essential to refine service offerings and pricing strategies to meet evolving expectations.

Relationship quality (CT) is positively related to customer loyalty. This result also provides empirical evidence supporting previous theories that higher level of trust and satisfaction perceived by customers, the higher level of customer loyalty achieved by service providers.

The partial mediation of customer trust (CT) in the relationship between relationship marketing tactics (RMTs) and customer loyalty in the mobile industry indicates that while RMTs play a significant role in fostering trust, other factors beyond trust also influence customer loyalty. To effectively enhance customer loyalty, mobile companies should focus on both strengthening relationship marketing tactics to build trust and addressing additional factors such as service quality, pricing, and value propositions. By adopting a holistic approach that considers various aspects impacting customer loyalty, companies can cultivate stronger relationships with customers and foster sustainable loyalty in the competitive mobile market landscape.

The findings of this research also provide important evidence for managers who take charge of RMTs. It is helpful for marketers understand the effectiveness of RMTs from consumer's perspective. Although many relationship tactics have potential for developing customer trust and loyalty, some tactics are more sensitive than others. Marketers should put their efforts into implementing more effective relationship marketing tactics, in order to enhance customer perceived trust and loyalty.

Service providers must also understand how important customer loyalty and high-quality relationships are to running a successful business. Higher levels of customer trust may result in more customer loyalty, which boosts vendor profits.

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