

**Customer Loyalty Through Improved Customer Service: A Case Study on
Biman Bangladesh Airlines**

ANALYSIS AND DISCUSION: QUESTIONNIRE SURVEY

Introduction

1. This chapter details the results obtained from the questionnaire survey to address the following three research objectives of the study:

- a.
- b.
- c.

2. The rest of the chapter is divided into six sections. First section details the findings related to the reliability and validity test trough pilot survey that justifies to conduct the survey on the sample as per sampling distribution. Second section identifies the descriptive statistics that validates the sampling distribution in accordance with the research methodology. Third section identifies the key variables that significantly influence customer satisfaction and loyalty in Biman Bangladesh Airlines Limited. Fourth section recognizes the impact of improved customer service on customer loyalty towards Biman Bangladesh Airlines. Fifth section provide suggestion of the respondents about the area of improvement to retain passengers in Biman Bangladesh Airlines Limited. Finally, sixth section summarizes the overall findings and draws conclusions in the light of the findings of the survey.

Rationale and Procedure of the Questionnaire Survey

3. The questionnaire survey conducted in this study aims to address three research objectives for improving customer service quality to retain passengers. The survey questionnaire consists of 20 questions, primarily close-ended, with a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5). It is divided into four parts: demographic profile of respondents, level of expectation towards Biman Bangladesh Airlines, dimensions of the impact of customer service on customer loyalty, and justification of customer opinions. **The questionnaire is attached in annex A.** The survey sampled 423 respondents, analyzing key demographic and categorical variables: gender, age, nationality, education level, connection type with Biman, passenger type, and travel frequency. The gender distribution showed a significant imbalance, with 19.1% female (n=81) and 80.9% male (n=342) respondents. Regarding connection type, 45.2% (n=191) were current passengers or service seekers, 31.2% (n=132) were past passengers or service seekers, and the remaining 23.6% (n=100) included a mix of academia and aviation industry experts, CAAB professionals, professionals from other airlines, passengers or service providers to other airlines, high officials of Biman, and Biman's staff or officials. Passenger type analysis revealed that 46.6% (n=197)

exclusively traveled on domestic routes, 40.0% (n=169) on both domestic and international routes, 3.5% (n=15) exclusively on international routes, with 4.5% (n=19) as passengers or service providers for airlines other than Biman, and 1.4% (n=6) as service providers to Biman or service seekers. **The survey database along with outcome is attached in annex B.** The comprehensive dataset provides a detailed understanding of the respondents' profiles and their varied relationships with the airline, forming the basis for understanding key factors affecting customer satisfaction and loyalty, the impact of customer service, and areas for improving service quality to retain passengers.

RELIABILITY AND VALIDITY TEST (CRONBACH'S ALPHA) TROUGH PILOT SURVEY

4. To analyze the reliability of two factors, Customer Satisfaction and Customer Loyalty, across eight variables (Passenger Trust, Airlines' Brand Reputation, Staff Service, Airline Safety, Route Availability and Convenience, Frequent Flyer Program, and Price), using 40 attributes/indicators, a pilot study was conducted with 43 respondents. The findings indicated excellent internal consistency with a Cronbach's Alpha of 0.959, suggesting that the items are highly correlated and reliably measure the underlying constructs. The corrected item-total correlations were analyzed, showing that Passenger Trust had the highest correlation at 0.920, indicating potential redundancy. Other variables, including Airlines' Brand Reputation, Staff Service, Airline Safety, Frequent Flyer Program, and Price, demonstrated correlations exceeding 0.7, except for Route Availability and Convenience, which had a correlation of 0.683. **The detailed test results are attached in annex C.** Although slightly below the ideal threshold, this value is still acceptable. The high overall Cronbach's Alpha value and strong item-total correlations support the internal consistency and reliability of the questionnaire. The analysis recommends reviewing the items for Passenger Trust to avoid redundancy and retaining the items for Route Availability and Convenience. The pilot study confirms the questionnaire's robustness and suitability for measuring Customer Satisfaction and Customer Loyalty in the target population.

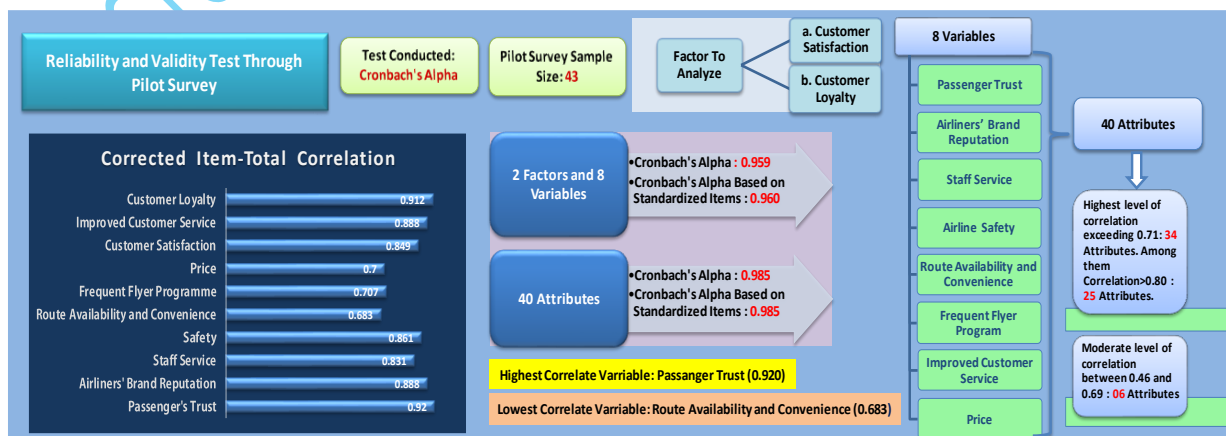


Figure 1: Result of Reliability and Validity Test (Cronbach's Alpha)

a. **Reliability Analysis of 40 Attributes/Indicators.** The overall Cronbach's Alpha for the 40 attributes was calculated to be 0.985, indicating excellent internal consistency. This high value suggests that the items within the questionnaire are highly interrelated and consistently measure the underlying constructs. **The detailed test results are attached in annex C.** Out of the 40 attributes, 25 exhibited corrected item-total correlations exceeding 0.80, indicating strong internal consistency but also suggesting potential redundancy. Nine attributes demonstrated inter-item correlations greater than 0.71, further indicating redundancy. The attribute "Route Availability" had a corrected item-total correlation of 0.464, suggesting optimal internal consistency and a moderate level of correlation with other items, making it sufficiently distinct yet related. Six other attributes had corrected item-total correlations ranging from 0.46 to 0.69, indicating moderate internal consistency and appropriate levels of correlation with the overall scale. Despite the high overall internal consistency, the presence of several attributes with very high corrected item-total correlations suggests that some items may be too similar. To improve the questionnaire, a careful review of items with very high correlations is recommended to ensure they measure distinct aspects of the underlying constructs. This will enhance the precision and effectiveness of the instrument. The high Cronbach's Alpha value and the distribution of item-total correlations confirm that the questionnaire is reliable and suitable for collecting actual data, with adjustments to redundant items further refining the instrument. The pilot study's findings demonstrate excellent internal consistency, with a Cronbach's Alpha of 0.985, and while most attributes show strong correlations, addressing redundancies will ensure each item uniquely contributes to measuring Customer Satisfaction and Customer Loyalty.

DESCRIPTIVE STATISTICS

6. The survey conducted with 423 respondents provides detailed insights into the demographic and categorical characteristics relevant to Biman Bangladesh Airlines. A comprehensive summary is given below however **the detailed test statistics are attached in annex D.**

a. **Gender:** The sample shows a significant gender imbalance, with 80.9% (n=342) male and 19.1% (n=81) female respondents.

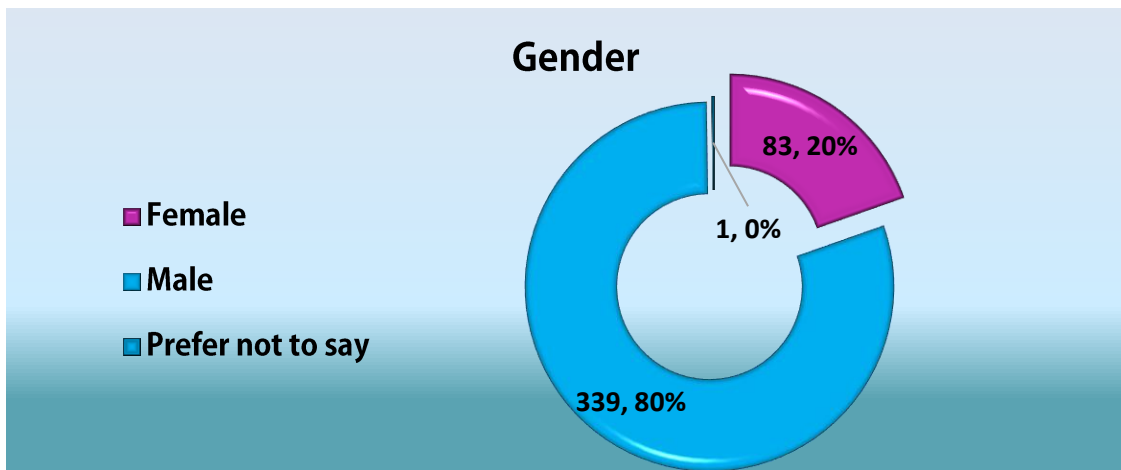


Figure 2: Participant's Gender Perspective Views.

- b. **Age:** The majority of respondents (38.8%) are aged 26-35, followed by 32.4% aged 36-45. Smaller percentages are represented by those aged 18-25 (11.3%), 46-59 (17.3%), and 60 and above (0.2%).

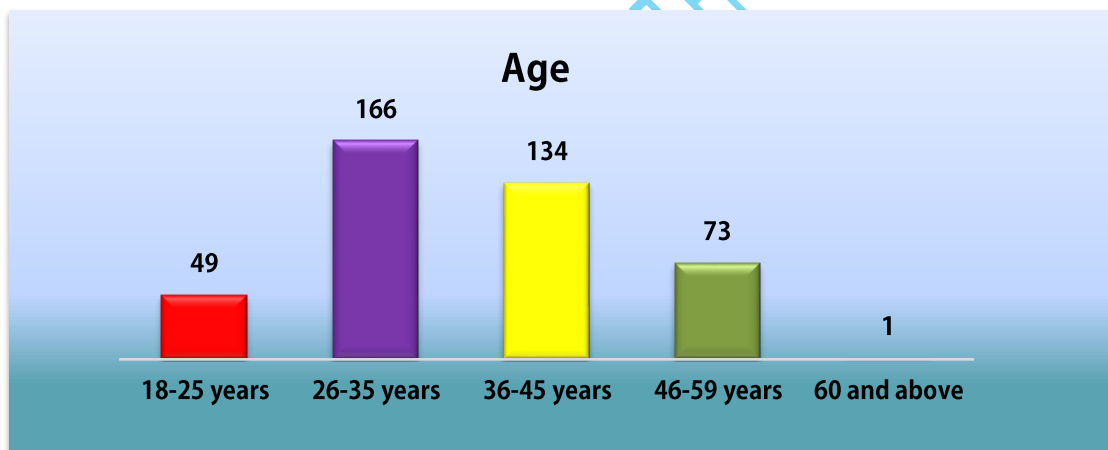


Figure 3: Participant's Age Maturity Band

- c. **Nationality:** A significant majority of the respondents (89.6%) are Bangladeshi. Other nationalities, including African, Canadian, European, American, and other Asians, each make up between 1.7% and 2.8% of the sample.

- d. **Education Level:** The educational background of the respondents is fairly evenly split between Bachelor's (38.3%) and Master's degree holders (38.3%). Those with Higher Secondary education or below constitute 17.5%, while individuals with professional/trade certificates and Doctoral degrees represent 3.8% and 2.1%, respectively.

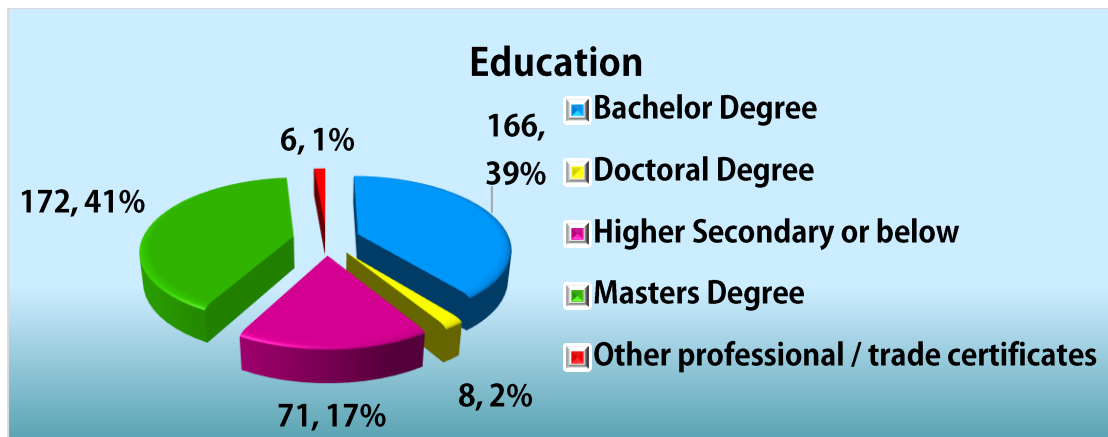


Figure 4: Participant's Academic Strength

e. **Connection Type:** Regarding their connection with Biman, 45.2% are current passengers or service seekers, and 31.2% are past passengers who haven't used Biman's services within the last year. Other connections include academia and aviation industry experts (5.0%), CAAB professionals (4.5%), professionals from other airlines (3.5%), passengers or service providers to other airlines (2.4%), high officials of Biman (0.5%), and Biman staff or officials (0.2%).

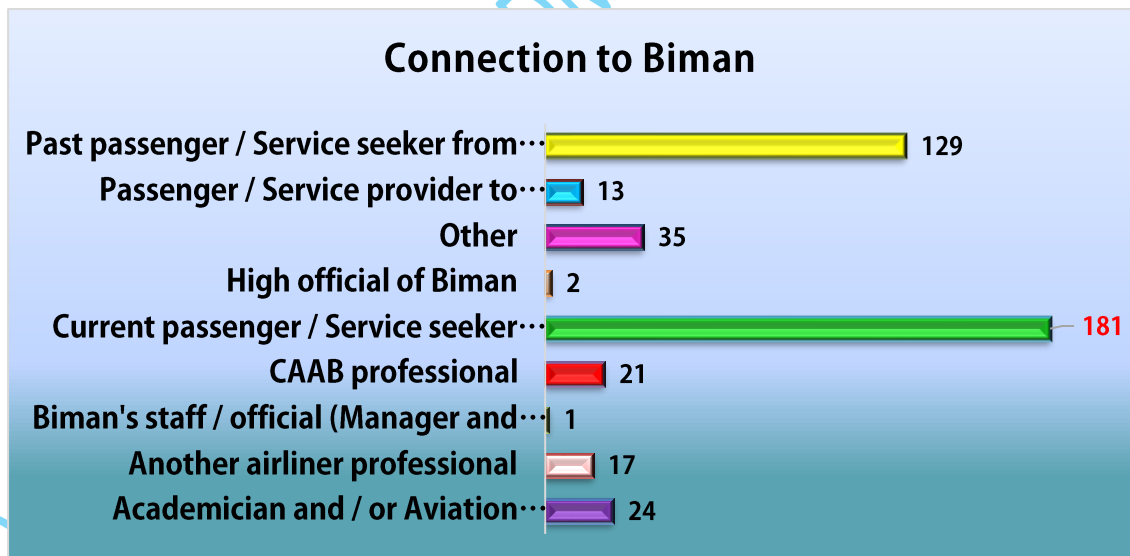


Figure 5: Participant's Purpose of Connection with Biman

f. **Passenger Type:** The data shows that 46.6% of respondents exclusively travel on domestic routes, 40.0% travel on both domestic and international routes, and 3.5% exclusively travel internationally. Additionally, 4.5% are passengers or service providers for airlines other than Biman, and 1.4% provide services to or seek services from Biman. An additional 4.0% fall under the "Other" category.

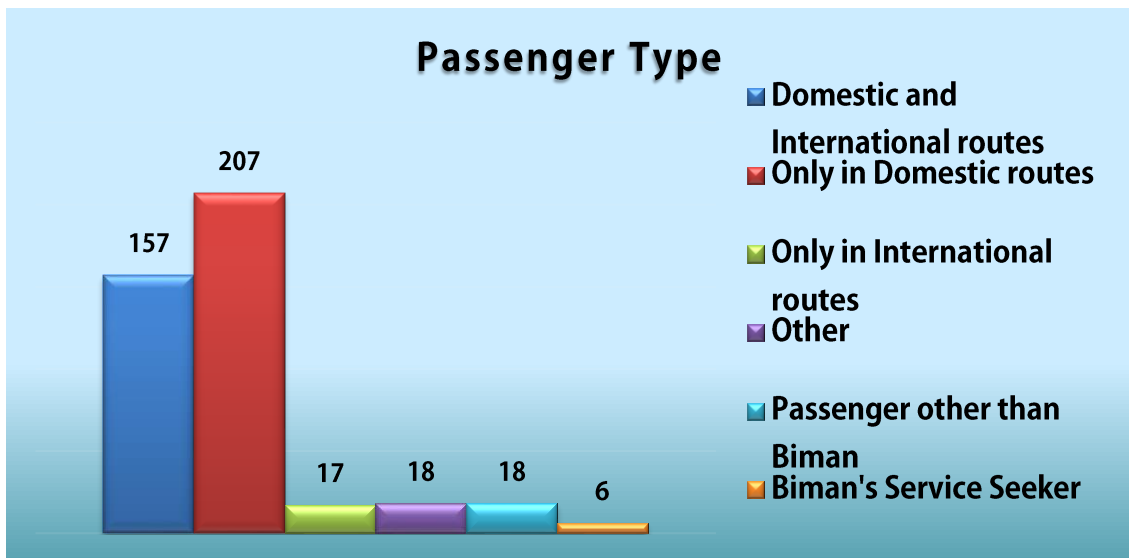


Figure 6: Participant's Type (Passenger Type) in Terms of Travel with Biman

g. **Travel Frequency:** Among the respondents, 42.6% use Biman's services at least once a year, 15.6% are frequent users, 17.0% use other airlines' services, 18.0% have never traveled via Biman, and 6.9% travel via Biman at least once a month.

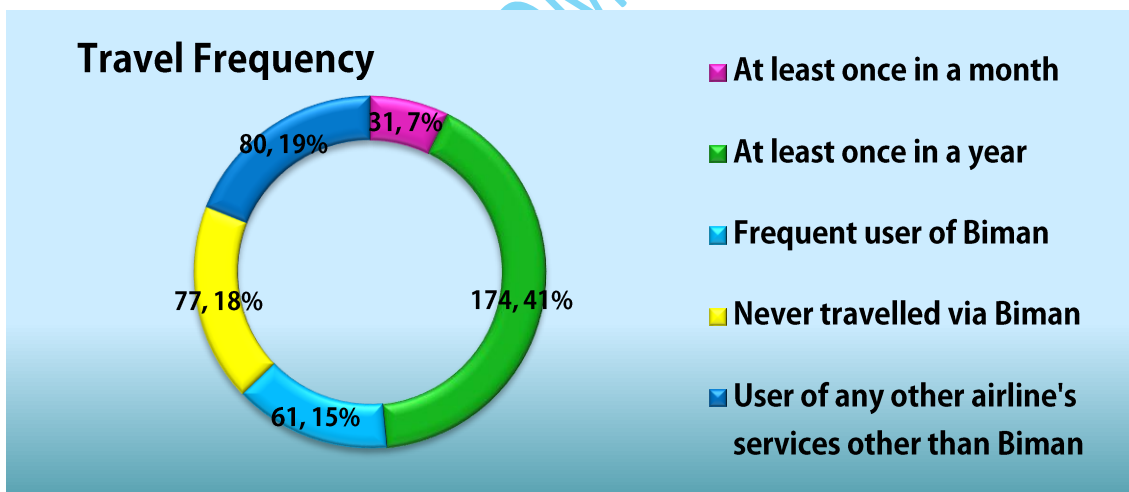


Figure 6: Participant's Travel Frequency with Biman

7. This comprehensive analysis reveals significant demographic trends and diverse relationships with Biman Bangladesh Airlines, providing a valuable foundation for further research into customer satisfaction, loyalty, and service quality.

INFERENTIAL STATISTICS

KEY VARIABLES THAT SIGNIFICANTLY INFLUENCE CUSTOMER SATISFACTION AND LOYALTY

8. To address objective I, this study will determine the key variables that significantly influence customer satisfaction, initially this section will determine key variables that significantly influence customer satisfaction and then key variables in relation to customer loyalty then finding will be combined to determine the key variables altogether for both customer satisfaction and loyalty.

DETERMINATION OF KEY VARIABLES THAT SIGNIFICANTLY INFLUENCE CUSTOMER SATISFACTION

9. To determine the key variables that significantly influence customer satisfaction, the results from various statistical tests like Pearson correlation coefficients, regression coefficients, ANOVA results, Chi-Square values, Phi coefficients, and Cramer's V coefficients are integrated, to identify the key variables influencing customer satisfaction in Biman Bangladesh Airlines Limited. **The detailed statistical analysis and interpretations are attached in annex E.**

- a. **Interpretation of Pearson Correlation Coefficients.** The Pearson correlation analysis of Biman Bangladesh Airlines' data reveals that improved customer service ($r = 0.806$), passenger trust ($r = 0.791$), staff service ($r = 0.737$), and airline brand reputation ($r = 0.736$) have the strongest positive correlations with customer satisfaction, indicating these areas should be strategic priorities. Moderately strong correlations are also observed with airline safety ($r = 0.673$), route availability and convenience ($r = 0.676$), and frequent flyer programs ($r = 0.694$), suggesting these factors significantly contribute to satisfaction. Price/ticket fare shows a moderate correlation ($r = 0.582$), indicating that while fair pricing impacts satisfaction, it is less influential compared to other factors.

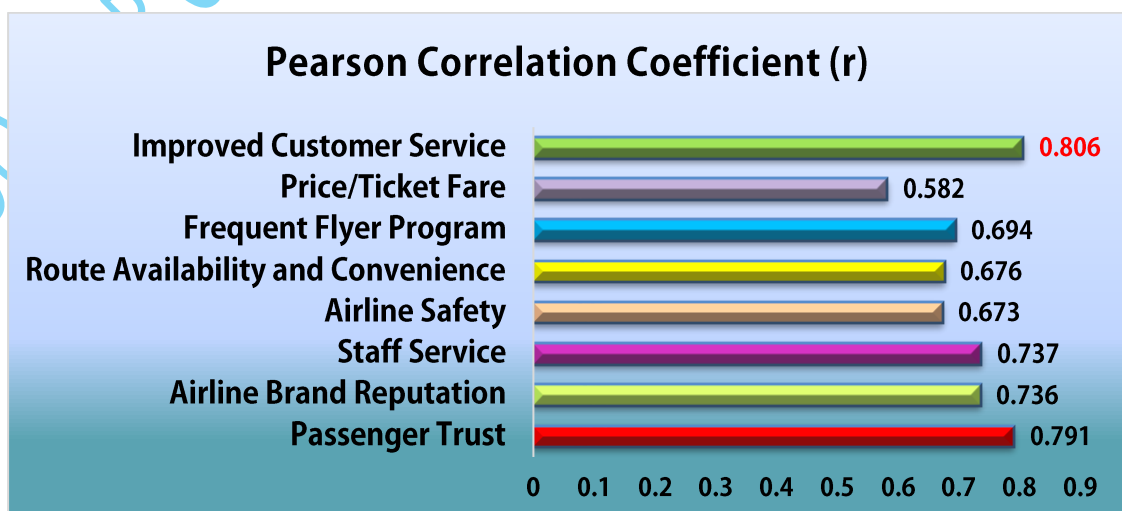


Figure 7: Pearson Correlation Coefficients between the Independent Variables and Customer Satisfaction

Overall, enhancing customer service, trust, staff service, brand reputation, safety, route convenience, loyalty programs, and pricing strategies will collectively boost customer satisfaction.

b. **Interpretation of Beta Values of Multiple Linear Regression Analysis.**

The multiple linear regression analysis for Biman Bangladesh Airlines Limited identifies the key factors influencing customer satisfaction, quantified by the beta (β) values. Improved customer service emerges as the most critical determinant with a β of +0.353, indicating a very strong positive impact. Passenger trust follows with a β of +0.291, denoting a strong positive influence. Staff service ($\beta = +0.103$), route availability and convenience ($\beta = +0.111$), and the frequent flyer program ($\beta = +0.094$) show moderate positive impacts. Airline brand reputation ($\beta = +0.082$) and price/ticket fare ($\beta = +0.054$) contribute weak positive influences, while airline safety ($\beta = +0.004$) has a negligible effect. Improved customer service and trust should be prioritized to significantly boost customer satisfaction, while maintaining focus on route convenience, staff service, and loyalty programs for further improvements.

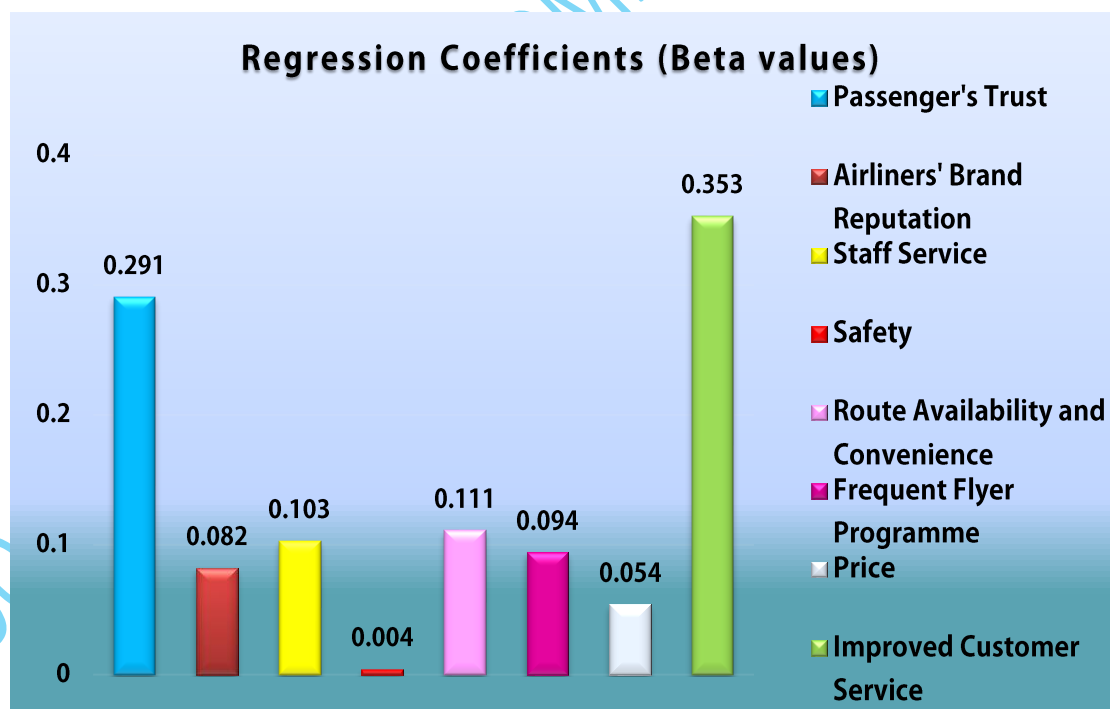


Figure 8: Regression Coefficients (Beta (β) Values) between the Independent Variables and Customer Satisfaction

c. **Interpretation of R/R-Squared value (R^2).** The model summary for Biman Bangladesh Airlines Limited demonstrates a robust statistical relationship between the predictors (Improved Customer Service, Price, Route Availability

and Convenience, Frequent Flyer Program, Safety, Staff Service, Passenger Trust, and Airline Brand Reputation) and customer satisfaction.

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.865 ^a	.749	.744	.580	.749	154.099	8	414	.000
a. Predictors: (Constant), Improved Customer Service, Price, Route Availability and Convenience, Frequent Flyer Programme, Safety, Staff Service, Passenger's Trust, Airlines' Brand Reputation									

Table 1: Model Summary of R/R-Squared (R^2) value on Customer Satisfaction

R value of 0.865 indicates a very strong positive correlation, suggesting that the model's predictors collectively have a substantial R Square value of 0.749 implies that approximately 74.9% of the variability in customer satisfaction is explained by these predictors, showcasing the model's strong explanatory power. The Adjusted R Square value of 0.744, which accounts for potential overfitting, remains close to the R Square value, further indicating the robustness and reliability of the model. A standard error of 0.580 suggests reasonable precision in the model, although there is room for improvement. The R Square Change of 0.749, along with an F Change value of 154.099 and a significance level of .000, confirms the statistical significance of the model. This low p-value highlights that the likelihood of the relationship occurring by chance is extremely low. The degrees of freedom ($df1 = 8$ and $df2 = 414$) affirm the model's statistical significance. Overall, the predictors provide a substantial and statistically significant explanation of customer satisfaction, making this a highly effective regression model for understanding the key factors influencing customer satisfaction for Biman Bangladesh Airlines Limited.

d. **Analysis of ANOVA Results.** The ANOVA analysis for the regression model on customer satisfaction for Biman Bangladesh Airlines Limited demonstrates significant results. The regression sum of squares (414.559) indicates that the model explains a substantial portion of the variability in customer satisfaction, while the residual sum of squares (139.219) shows that a smaller portion remains unexplained.

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	414.559	8	51.820	154.099	.000 ^b
	Residual	139.219	414	.336		
	Total	553.778	422			

a. Dependent Variable: Customer Satisfaction
b. Predictors: (Constant), Improved Customer Service, Price, Route Availability and Convenience, Frequent Flyer Programme, Safety, Staff Service, Passenger's Trust, Airlines' Brand Reputation

Table 2: ANOVA Analysis for the Regression Model on Customer Satisfaction

The total sum of squares (553.778) represents the overall variability in customer satisfaction. With degrees of freedom of 8 for the regression and 414 for the residuals, the mean square values for regression (51.820) and residuals (0.336) are derived. The F statistic of 154.099, significantly high, confirms that the explained variability by the model far exceeds the unexplained variability. The p-value (Sig. = .000) indicates a highly significant model, demonstrating that the predictors (Improved Customer Service, Price, Route Availability and Convenience, Frequent Flyer Program, Safety, Staff Service, Passenger Trust, and Airline Brand Reputation) collectively have a strong and significant impact on customer satisfaction. This analysis validates the model's robustness and the effectiveness of the predictors in explaining customer satisfaction variability.

e. **Chi-Square Test Results.** The Chi-Square test analysis for Biman Bangladesh Airlines Limited reveals significant associations between the independent variables and customer satisfaction. Improved Customer Service exhibits the strongest association with a Chi-Square value of 654.434, a Phi coefficient of 1.244, and a Cramer's V of 0.622, indicating a very strong impact on customer satisfaction. Passenger Trust also shows a high association with values of 525.48, 1.115, and 0.557, respectively. Similarly, Staff Service has a Chi-Square value of 462.108, a Phi coefficient of 1.045, and a Cramer's V of 0.523, all pointing to a strong relationship with customer satisfaction. Airline Brand Reputation and Route Availability and Convenience present moderate to strong associations with similar values (Chi-Square around 399, Phi around 0.971, and Cramer's V around 0.486). Frequent Flyer Program, Price/Ticket Fare, and Airline Safety show moderate associations with Chi-Square values of 382.802, 351.872, and 306.113, Phi coefficients of 0.951, 0.912, and 0.851, and Cramer's V values of 0.476, 0.456, and 0.425, respectively. These results highlight the varying degrees of influence each independent variable has on customer satisfaction, with Improved Customer Service, Passenger Trust, and Staff Service being the most impactful.

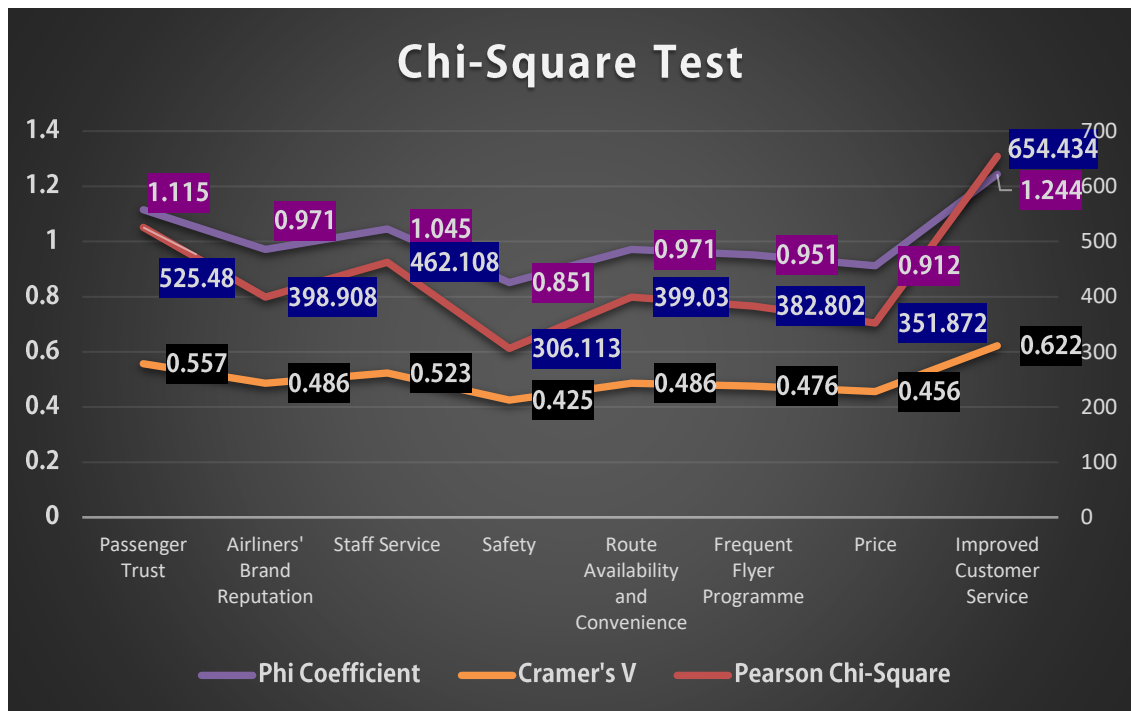


Figure 8: Chi-Square Test Analysis
between the Independent Variables and Customer Satisfaction

f. **Key Variables Influencing Customer Satisfaction for Biman Bangladesh Airlines Limited.** An integrated analysis of Pearson correlation coefficients, regression, and Chi-Square test results highlights the key variables driving customer satisfaction for Biman Bangladesh Airlines Limited. Improved Customer Service stands out as the most influential factor, showing the highest Beta value and Chi-Square test results. Passenger Trust follows closely with a strong positive effect and high Chi-Square values, indicating its significant impact. Staff Service, Airline Brand Reputation, and Route Availability and Convenience exhibit moderate to strong associations in both regression and Chi-Square analyses, underscoring their importance. The Frequent Flyer Program and Price/Ticket Fare have moderate impacts, while Airline Safety, despite its moderate association, remains a relevant variable. To enhance customer satisfaction, Biman Bangladesh Airlines should prioritize improved customer service, enhance passenger trust, and improve staff service and the frequent flyer program. Maintaining a strong brand reputation and ensuring route availability and convenience are also crucial. Although price is an important factor, its impact is moderate compared to other variables. A comprehensive strategy addressing these key variables will significantly boost customer satisfaction and strengthen the competitive position of Biman Bangladesh Airlines in the aviation industry.

DETERMINATION OF KEY VARIABLES THAT SIGNIFICANTLY INFLUENCE CUSTOMER LOYALTY

10. Customer loyalty is a crucial measure for the success and sustainability of any airline. To determine the key factors influencing customer loyalty for Biman Bangladesh Airlines Limited, a comprehensive statistical analysis was conducted, encompassing descriptive statistics, Pearson correlation coefficients, multiple linear regression, ANOVA, and chi-square tests. [The detailed statistical analysis and interpretations are attached in annex F.](#)

a. **Descriptive Statistics.** Descriptive statistics provide a basic understanding of the dataset. The mean scores of key variables such as Passenger's Trust (3.30), Airlines' Brand Reputation (2.91), and Improved Customer Service (3.34) indicate moderate levels of customer perception in these areas. Customer loyalty itself has a mean score of 3.28, suggesting a mid-range level of loyalty among respondents. The standard deviations indicate variability in customer responses, with values such as 1.035 for Passenger's Trust and 1.057 for Improved Customer Service reflecting considerable variation in perceptions.

b. **Pearson Correlation Analysis.** Correlation analysis reveals the strength and direction of relationships between independent variables and customer loyalty. Improved Customer Service shows the highest correlation with customer loyalty (0.771), followed by Passenger Trust (0.741) and Airlines' Brand Reputation (0.730). These strong positive correlations suggest that enhancements in these areas are likely to significantly boost customer loyalty. Safety (0.689) and Frequent Flyer Programme (0.691) also show substantial positive correlations, highlighting their importance.

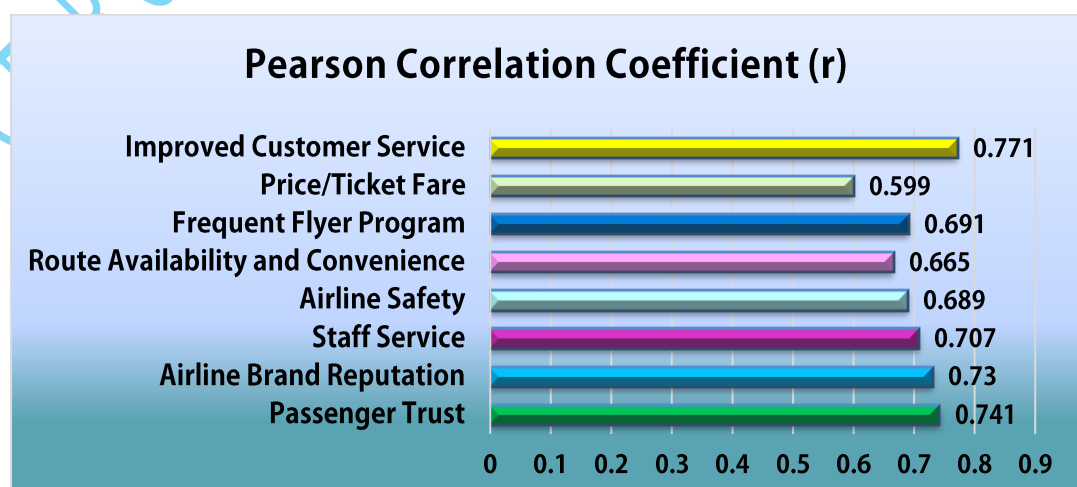


Figure 9: Pearson Correlation Coefficients between the Independent Variables and Customer Loyalty

c. **Multiple Linear Regression Analysis.** Multiple linear regression analysis provides insights into the direct impact of each independent variable on customer loyalty. Improved Customer Service has the highest unstandardized coefficient ($B = 0.272$), indicating it has the most substantial direct effect on customer loyalty. Passenger Trust ($B = 0.137$) and Airlines' Brand Reputation ($B = 0.136$) also have notable coefficients, reinforcing their critical roles. The regression model is statistically significant ($F = 122.817$, $p < 0.05$), indicating that the independent variables collectively have a significant impact on customer loyalty.

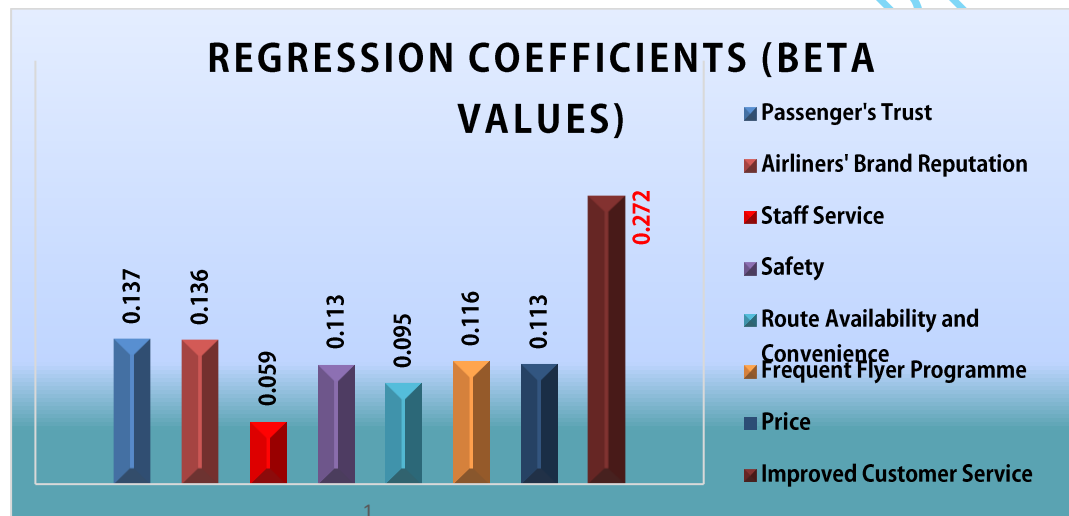


Figure 10: Regression Coefficients (Beta (β) Values) between the Independent Variables and Customer Loyalty

d. **Interpretation of R/R-Squared Value.** The R-squared value of the regression model is 0.704, indicating that approximately 70.4% of the variance in customer loyalty can be explained by the combined effect of the independent variables. This high explanatory power demonstrates the effectiveness of the model in capturing the relationships between the key factors and customer loyalty.

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.839 ^a	.704	.698	.591	.704	122.817	8	414	.000
a. Predictors: (Constant), Improved Customer Service, Price, Route Availability and Convenience, Frequent Flyer Programme, Safety, Staff Service, Passenger's Trust, Airlines' Brand Reputation									

Table 3: Model Summary of R/R-Squared (R^2) value on Customer Loyalty

e. **ANOVA Results.** ANOVA results confirm the overall significance of the regression model. The regression sums of squares (342.688) compared to the residual sum of squares (144.395) shows that the model explains a substantial portion of the variability in customer loyalty. The significant F-statistic (122.817, $p < 0.05$) further validates that the independent variables collectively have a significant impact on customer loyalty.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	342.688	8	42.836	122.817	.000 ^b
	Residual	144.395	414	.349		
	Total	487.083	422			
a. Dependent Variable: Customer Loyalty						
b. Predictors: (Constant), Improved Customer Service, Price, Route Availability and Convenience, Frequent Flyer Programme, Safety, Staff Service, Passenger's Trust, Airlines' Brand Reputation						

Table 4: ANOVA Analysis for the Regression Model on Customer Loyalty

f. **Chi-Square Test Results.** Chi-square tests provide additional support for the findings. Improved Customer Service has the highest Pearson Chi-Square value (605.436), along with a Phi coefficient of 1.196 and Cramer's V of 0.598, indicating a very strong association with customer loyalty. Passenger Trust (437.390) and Airlines' Brand Reputation (452.694) also show high chi-square values, confirming their significant roles in influencing customer loyalty.

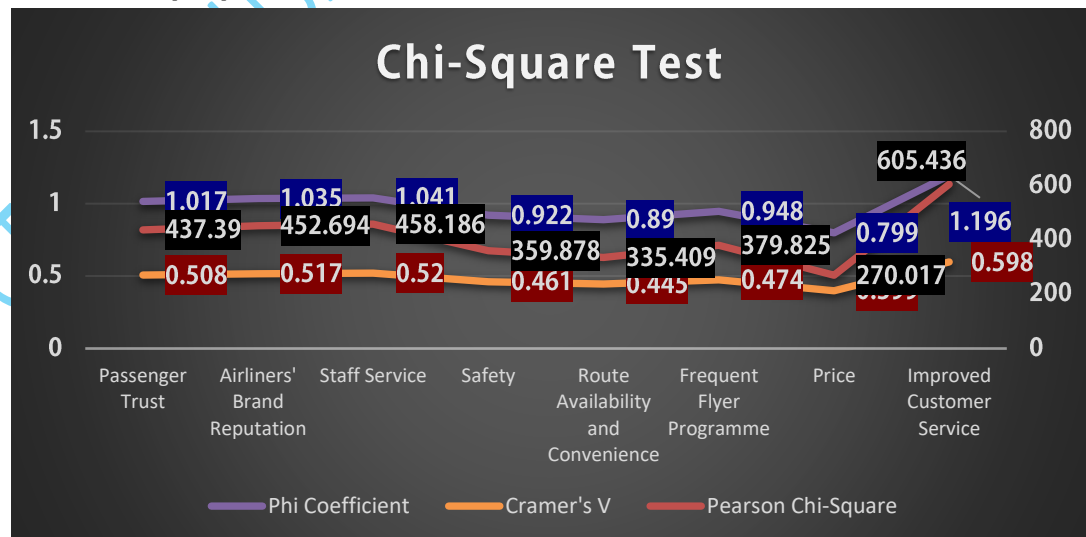


Figure 11: Chi-Square Test Analysis between the Independent Variables and Customer Loyalty

g. **Key Variables Influencing Customer Loyalty for Biman Bangladesh Airlines Limited.** Improved Customer Service emerged as the

strongest factor influencing customer loyalty, exhibiting the highest correlation (0.771), regression coefficient (0.272), and chi-square value (605.436), underscoring the need for prioritizing customer service enhancements. Passenger Trust also showed a significant correlation (0.741) and regression coefficient (0.137), highlighting the importance of building and maintaining trust. Airlines' Brand Reputation demonstrated a strong correlation (0.730) and regression coefficient (0.136), indicating its substantial impact on loyalty. Additionally, Staff Service, Safety, Route Availability and Convenience, Frequent Flyer Programme, and Price, while less impactful than the top three factors, still exhibited positive associations with customer loyalty, suggesting their importance in a comprehensive loyalty strategy. Therefore, to enhance customer loyalty, Biman Bangladesh Airlines should focus on improving customer service, building passenger trust, and maintaining a strong brand reputation, as these areas are supported by data-driven insights and will significantly strengthen customer loyalty and ensure a competitive advantage.

DETERMINATION OF KEY VARIABLES THAT INFLUENCE BOTH CUSTOMER SATISFACTION AND CUSTOMER LOYALTY

11. Based on a detailed statistical analysis as attached in Annex G, several key variables have been identified that significantly influence both customer satisfaction and customer loyalty for Biman Bangladesh Airlines Limited. These variables were prioritized using Pearson correlation coefficients, regression beta values, Chi-Square test results, and regression coefficients for customer satisfaction.

a. Improved Customer Service emerged as the most critical factor. It demonstrated the highest correlation with customer loyalty (0.806), the strongest regression coefficient (+0.353), and the highest Chi-Square value. This indicates that enhancing customer service will substantially boost both satisfaction and loyalty.

b. Passenger Trust is another vital variable, with a high correlation (0.791) and a strong regression coefficient (+0.291). Building and maintaining trust among passengers is crucial for fostering long-term loyalty and satisfaction.

c. Staff Service and Airline Brand Reputation also showed strong positive relationships with customer loyalty. Staff service had a correlation of 0.737 and a beta value of +0.103, while brand reputation had a correlation of 0.736 and a beta value of +0.082. These variables are essential for creating positive customer experiences and enhancing loyalty.

d. Route Availability and Convenience and the Frequent Flyer Program demonstrated moderate to strong influences on customer loyalty, with correlations of 0.676 and 0.694, respectively, and positive regression coefficients. These factors contribute to overall satisfaction by providing convenience and rewarding frequent customers.

e. Airline Safety and Price/Ticket Fare showed moderate correlations with customer loyalty (0.689 and 0.599, respectively) and had positive but relatively lower regression coefficients. Although their impact is less pronounced compared to other factors, they remain important for ensuring customer satisfaction and competitive pricing.

12. In conclusion, to enhance customer loyalty and satisfaction, Biman Bangladesh Airlines should prioritize improving customer service, building passenger trust, enhancing staff service, and maintaining a strong brand reputation. Addressing these key areas, supported by data-driven insights, will significantly strengthen customer loyalty and ensure a competitive advantage.

IMPACT OF IMPROVED CUSTOMER SERVICE ON CUSTOMER LOYALTY TOWARDS BIMAN BANGLADESH AIRLINES

13. To address objective II, this study investigates the impact of improved customer service on customer loyalty towards Biman Bangladesh Airlines. Improved customer service is treated as the independent variable, and customer loyalty is the dependent variable. Data was collected from a survey of 423 respondents to evaluate how enhancements in customer service affect customer loyalty. Various statistical analyses, including correlation, regression, and Chi-Square tests, were conducted to draw comprehensive conclusions. **The detailed statistical analysis and interpretations are attached in annex H.**

a. **Descriptive Statistics.** The survey results yielded a mean value of 3.34 for improved customer service and a mean value of 3.28 for customer loyalty. This suggests that, on average, respondents rated the quality of customer service provided by Biman Bangladesh Airlines slightly higher than their overall loyalty to the airline. The close proximity of these mean values implies a potential relationship between how customers perceive the quality of service and their loyalty to the airline. This foundational understanding sets the stage for further statistical analyses, such as correlation and regression, to explore the strength and nature of this relationship.

b. **Correlation Analysis.** The relationship between improved customer service and customer loyalty was analyzed using Pearson's correlation coefficient, which yielded a value of 0.771. This indicates a strong positive correlation, implying that higher levels of customer service quality are associated with higher

levels of customer loyalty. To determine the statistical significance of this correlation, a hypothesis test was conducted. The null hypothesis posited that there is no correlation between improved customer service and customer loyalty ($r = 0$), while the alternative hypothesis posited that there is a correlation ($r \neq 0$). Given the large sample size of 423, the significance of the Pearson correlation coefficient was tested using a t-test. The calculated t-value was 21.26, which is much greater than the critical value of 1.96 for a two-tailed test at the 0.05 significance level. Consequently, the null hypothesis was rejected, indicating that the correlation is statistically significant ($p < 0.001$).

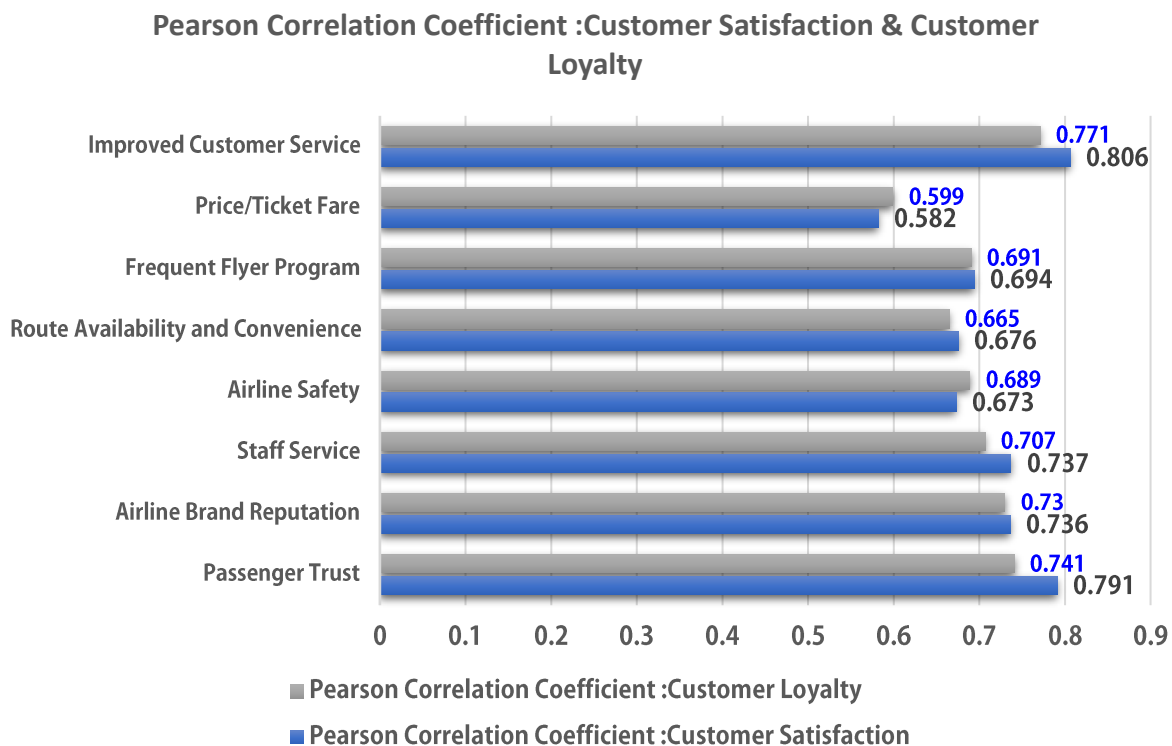


Figure 12: Pearson Correlation Coefficients between the Independent Variables and both Customer Satisfaction and Customer Loyalty

c. **Fisher z-Transformation.** The Fisher z-transformation was used to construct the confidence interval for the correlation coefficient. The 95% confidence interval for the Pearson correlation coefficient was calculated to be approximately [0.708, 0.824], reinforcing the robustness of the strong positive relationship observed between improved customer service and customer loyalty.

d. **Regression Analysis.** A linear regression analysis was performed to further explore the relationship between improved customer service and customer loyalty. The regression coefficient (slope) was found to be 0.658, indicating that for every unit increase in improved customer service, customer loyalty increases by 0.658 units. The intercept was 0.784, suggesting that when

the value of improved customer service is zero, the expected baseline level of customer loyalty is 0.784.

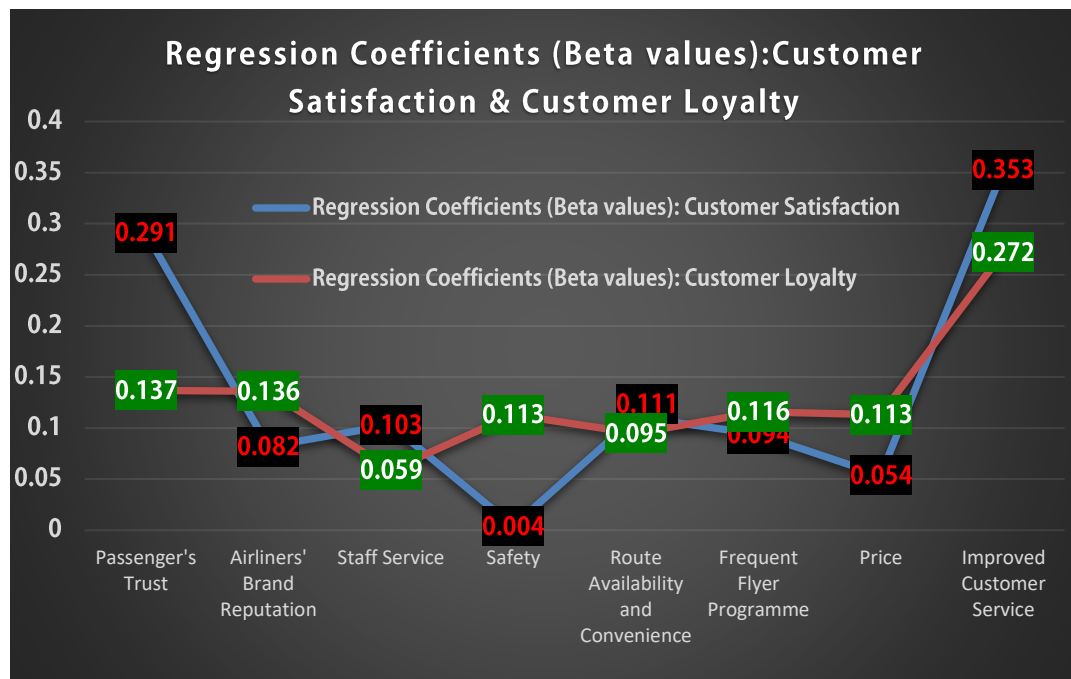


Figure 13: Regression Coefficients (Beta (β) Values) between the Independent Variables and both Customer Satisfaction and Customer Loyalty

e. **R-Squared Value.** The R-squared value was 0.595, meaning that 59.5% of the variance in customer loyalty can be explained by changes in improved customer service, while the remaining 40.5% of the variance is attributed to other factors not included in this model or to random variability. The p-value associated with the regression coefficient was less than 0.001, indicating that the relationship between improved customer service and customer loyalty is statistically significant.

f. **Chi-Square Test for Independence.** A Chi-Square test for independence was conducted to assess the relationship between improved customer service and customer loyalty. The test yielded a Phi value of 1.196 and a Cramer's V value of 0.598. The Phi coefficient, although greater than 1, suggests a very strong association between the variables, but Cramer's V, which is more appropriate for larger tables, indicates a strong association between improved customer service and customer loyalty. This value is well above the threshold for a medium effect size (typically 0.3), suggesting that improved customer service has a significant and substantial impact on customer loyalty. Given that the p-value from the Chi-Square test was less than 0.05, we reject the null hypothesis, indicating that improved customer service has a significant impact on customer loyalty.

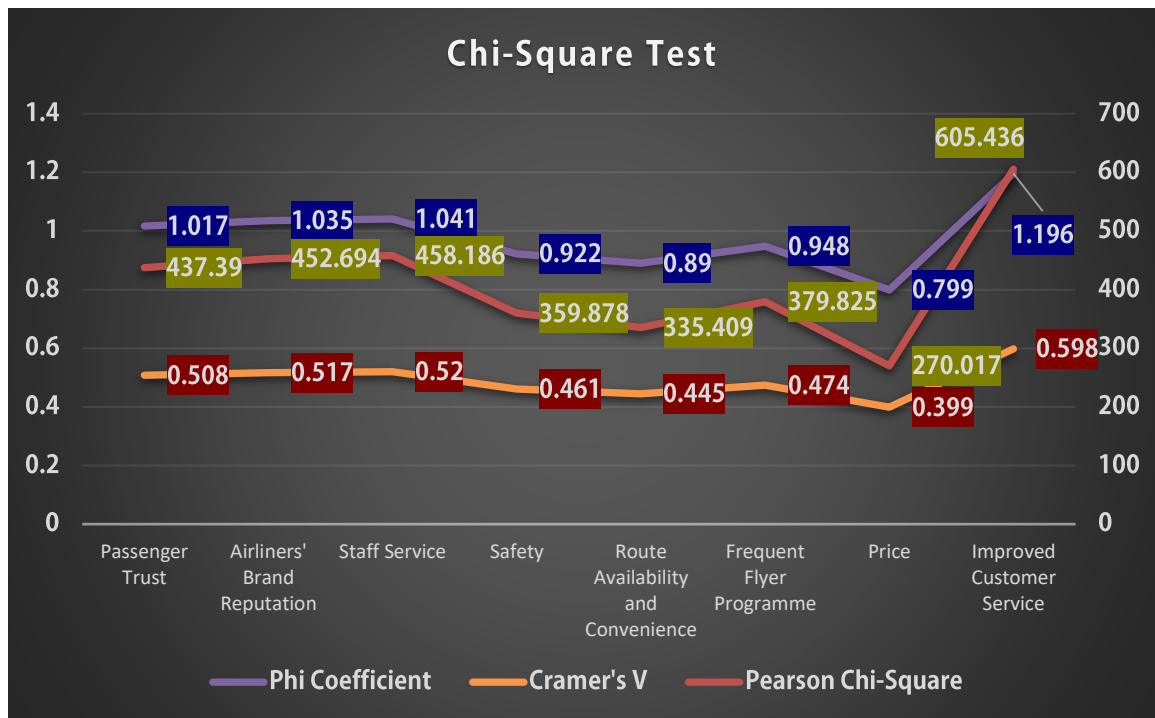


Figure 14 Chi-Square test for independence Analysis between the Independent Variables and both Customer Satisfaction and Customer Loyalty

14. The analyses collectively reveal that improved customer service has a strong and statistically significant impact on customer loyalty towards Biman Bangladesh Airlines. The strong positive correlation ($r = 0.771$) and substantial R-squared value (0.595) from the regression analysis indicate that enhancements in customer service are likely to lead to increased customer loyalty. The Chi-Square test supports this finding, with a strong association indicated by Cramer's V (0.598). These results underscore the importance of focusing on customer service improvements as a strategic priority for Biman Bangladesh Airlines to foster greater customer loyalty. The robust confidence interval for the correlation coefficient [0.708, 0.824] further confirms the reliability of the strong positive relationship observed. While improved customer service significantly predicts customer loyalty, further research is recommended to explore additional factors influencing customer loyalty, ensuring a comprehensive strategy for customer retention.

SUGGESTION FOR IMPROVING CUSTOMER SERVICE QUALITY TO RETAIN PASSENGERS IN BIMAN BANGLADESH AIRLINES LIMITED.

15. To address objective III, this study analyses numerous suggestions from 423 respondents in a recent survey for improving the services of Biman Bangladesh Airlines Limited, the national flag carrier of Bangladesh. The feedback focuses on various aspects of customer service, ground handling, pricing, punctuality, and overall professionalism.

Based on the analysis of the respondents' answers, here are the key suggestions for improving Biman Bangladesh Airlines' service quality:

a. **Enhance Customer Care**

- 1) **Training**: Regular and intensive training programs for both cabin and ground crew to enhance professionalism, behavior, and efficiency.
- 2) **Customer Interaction**: Improve the attitude and hospitality of staff towards passengers, ensuring a positive and respectful interaction.
- 3) **Accountability**: Implement a system of accountability for staff performance, including rewards for good service and penalties for poor performance.

b. **Improve Ground Handling and Efficiency**

- 1) **Professionalism**: Increase professionalism and efficiency in ground handling services.
- 2) **Luggage Handling**: Implement better luggage handling protocols to reduce mishandling and loss.
- 3) **Timely Services**: Ensure timely services at check-in counters and boarding gates.

c. **Enhance Ticketing System**

- 1) **Availability**: Improve the ticketing system to accurately reflect seat availability and reduce instances of "no seats available" despite having free seats.
- 2) **Pricing**: Offer competitive and transparent pricing, including special promotions and reduced fares for specific routes and occasions (e.g., Hajj).
- 3) **Ease of Booking**: Simplify the booking process, making it user-friendly with clear policies on cancellations and changes.

d. **Punctuality and Schedule Maintenance**

- 1) **Timely Departures**: Prioritize punctuality in flight schedules to avoid delays and cancellations.
- 2) **Communication**: Improve communication with passengers regarding flight delays or changes in schedule, providing timely updates to avoid inconvenience.

e. **Digital Solutions and Feedback Systems**

- 1) **Digitalization**: Implement digital solutions for customer service, such as automated check-ins, baggage tracking, and in-flight services.
- 2) **Feedback Mechanisms**: Establish robust feedback systems to collect and act on passenger reviews and suggestions.

f. **Service Quality and In-Flight Experience**

- 1) Comfort and Cleanliness: Ensure high standards of cleanliness and maintenance of aircraft, including seats and lavatories.
- 2) In-Flight Services: Improve the quality of in-flight services, including better food options and entertainment.
- 3) Personalization: Introduce personalized cabin environments with adjustable seat height and temperature controls.

g. Management and Leadership

- 1) Effective Management: Strengthen the overall management system with a focus on professionalism, transparency, and effective governance.
- 2) Experienced Leadership: Consider hiring experienced foreign management personnel to bring international best practices and bold decision-making to the airline.

h. Employee Morale and Professional Development

- 1) Training and Development: Regularly train employees to maintain high service standards and adapt to new technologies.
- 2) Motivation and Morale: Foster a positive work environment with performance-based incentives and clear career progression paths.

16. By implementing these comprehensive suggestions, Biman Bangladesh Airlines can significantly enhance its service quality, attract more customers, and improve its overall reputation in the aviation industry.

Conclusion

17. The statistical analysis of the questionnaire data for Biman Bangladesh Airlines Limited reveals that improved customer service and passenger trust are the most critical factors driving customer satisfaction and loyalty. The regression model shows that 74.9% of the variability in customer satisfaction can be explained by these factors, highlighting their significance. Additionally, staff service, airline brand reputation, route availability and convenience, and the frequent flyer program also play important roles, though to a lesser extent. While price and airline safety are positively correlated with customer satisfaction, their impacts are smaller. The high internal consistency of the questionnaire, indicated by a Cronbach's Alpha of 0.959, confirms its reliability. Therefore, strategic enhancements in customer service, trust, and related areas will likely lead to significant improvements in customer satisfaction and loyalty, strengthening Biman Bangladesh Airlines' competitive position in the aviation industry.