Service quality and customer satisfaction in the airline industry in Tanzania: a case of Air Tanzania Company Limited

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ABSTRACT

This study aimed to assess the influence of service quality on customer satisfaction within Air Tanzania Company Limited (ATCL) in Dar es Salaam, with a specific focus on the influence of tangible elements, personal services, and airline image. The study adopted a theoretical framework based on the Expectancy Disconfirmation Theory and the AIRQUAL Model for understanding the relationship between service quality and customer satisfaction. To achieve the study’s objectives, a cross-sectional research design was employed, allowing for the collection of data from a diverse sample of ATCL customers. The sample was selected using a combination of simple random sampling and purposive sampling techniques. A total of 302 ATCL customers and 8 supervisors from ATCL participated in the study, providing valuable insights into their perceptions of service quality and its effect on their overall satisfaction. Data collection was primarily conducted through structured questionnaires and face-to-face interviews. The data was analyzed using Binary Logistic Regression in IBM SPSS Statistics 23, allowing for the identification of significant relationships between service quality dimensions and customer satisfaction. The analysis of perceived service quality dimensions showed that customers' perceptions of ATCL’s service quality fell short of their expectations, with negative scores across all dimensions. This suggests a general dissatisfaction among customers with the service quality provided by ATCL. Specifically, the rankings indicated that airline image was the top contributor to dissatisfaction. The overall index score for service quality further supported these findings, registering at 0.3996. The binary logistic regression results indicated significant positive relationships between all three dimensions (tangible elements, personal services, and airline image) and customer satisfaction. To maintain service quality standards, collaboration between policymakers and ATCL management is crucial to establishing guidelines as well as conducting regular audits, allocating enough resources for tangible improvements and investing in employee training for better customer interactions.

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Introduction

In today’s increasingly competitive business, characterized by the rapid growth of the service sector, the quality of services has become paramount for organizations striving to meet customer expectations and gain a competitive edge (Tajeddini et al., 2023; Javed Ali et al., 2021; Akroush et al., 2016). The service sector contributes to 67.9% of the global GDP Magoti & Mtui (2020) and creates more than 70% of employment in the world Deloitte (2018). Service sectors such as information technology, hospitality, transportation, mass media, entertainment, sports, finance, education, and healthcare should deliver the ideal quality services to maintain the right level of satisfaction for their customers (Magasi et al., 2022). Africa’s service sector has been experiencing notable growth and understanding customer satisfaction is crucial for airlines to remain competitive and enhance service quality. Businesses have been forced to develop unique strategies for boosting their level of service due to a decline in satisfaction among customers and a rise in customer expectations (Wahab & Rady, 2018). Tanzania in particular, service quality has remained a critical concern from the fact that evaluating services is complicated (Mashenene, 2019). For businesses to compete in the competitive environment, awareness of customer needs and expectations is very important (Taherdangkoo et al., 2019; Trivedi et al., 2018; Nyangarika, 2016).
The airline industry is one of the major service sectors in the world which is important in increasing the country’s GDP, increasing employment opportunities, facilitating tourism, fostering economic growth, and increasing revenue from the tax collected. One of the several public entities in Tanzania that have experienced losses over the past five years as a result of underperforming investments and commercial operations is Air Tanzania Company Limited (CAG, 2023). Apart from receiving TZS 30.63 billion in government funding during the fiscal year 2021–2022, it nevertheless reported a loss of TZS 35.23 billion. The report further makes recommendations on the operations and market strategies, such as service quality evaluation, to reduce costs and increase revenue due to the company’s underperformance.

Due to the change in the marketing environment, customer needs, and expectations, different service sectors including the airline industry and the government are still looking for better ways to make the delivery of services effective. In efforts to improve the airline industry, the government of the United Republic of Tanzania has increased the number of aircraft and airports, the number of staff, improvement in airport infrastructures and investment in technology to lower costs, provision of grants of TZS 30.63 billion CAG (2023) and introduction of the Civil Aviation Act of 2003 which is responsible for regulating and controlling all the matters in the airline industry. Despite the efforts done by the government of the United Republic of Tanzania to improve the airline industry; ATCL is still faced with several problems such as underperformance (CAG, 2023). ATCL is faced with service quality problems as observed in the Air Tanzania Customer Reviews such as luggage losses, flight delays, ineffective emailing and ticketing information system, poor customer services, inadequate number of staff, unavailability of services for twenty-four hours, incompetent service providers, cancellation of flights without information and poor refunding process (Airline Reviews and Rating | SKYTRAX, 2023.). The said problems have resulted in dissatisfaction among ATCL users and the failure to solve the identified problems and provision of quality services in ATCL is likely to result in loss of customers, loss of revenue, costs increase, bankruptcy and damage to the airline’s reputation. With such problems facing the airline industry, studies have not given enough attention to how service quality can enhance customer satisfaction in ATCL.

In Tanzania, most of the previous service quality studies were conducted in the education sector, banking industry, energy sector, posts corporations and telecommunication sector by Mashenene (2019), Magoma et al. (2019), Peter and Batonda (2022), Nyangarika (2016) and Mboma (2021) respectively and have concentrated on measuring the effect of service quality on customer satisfaction using SERVQUAL model. This study at hand intends to assess the effect of service quality on customer satisfaction in the airline industry using the AIRQUAL model through airline tangibles, personal services and airline image. This model is important as it has the most necessary dimensions that need improvement in airline service quality and has not received much attention due to its emergency development (Badrillah et al., 2023). In the same way, this study was important in identifying specific airline dimensions that can be used by ATCL to enhance customer satisfaction since there are inadequate studies that have used the AIRQUAL model in Tanzania.

In an effort to address the existing research gap, this study established three specific objectives to investigate the influence of various factors on customer satisfaction within the airline industry. The primary aim of this research was to enhance an understanding of customer satisfaction, with a specific focus on Air Tanzania Company Limited in Dar es Salaam. The first objective examined the influence of tangible elements, such as in-flight amenities and cabin features, provided by the airline on customer satisfaction levels. This objective aimed to provide practical insights into how these physical aspects directly influence passengers’ overall satisfaction and their overall experience. The second objective evaluated the influence of personnel services, including interactions with flight attendants, ground staff, and customer service representatives, on customer satisfaction. Through this assessment, the objective aimed to uncover the specific role these services play in enhancing the passenger experience and offering valuable insights for improving service standards in the airline industry. Lastly, the study determined how the airline’s image, including its brand reputation and public perception, influenced and shaped customer satisfaction within the context of Air Tanzania Company Limited in Dar es Salaam. The objective aimed to provide insights into how these factors contributed to passengers’ overall satisfaction and their loyalty to the airline. The findings were expected to have practical implications for brand management and marketing strategies in the airline industry. Through these objectives, this research shed light on the dynamics that underlie customer satisfaction in the airline industry, specifically within Air Tanzania Company Limited in Dar es Salaam.

**Literature Review**

The purpose of this review is to investigate the theoretical foundations and their application in understanding customer satisfaction dynamics within Air Tanzania Company Limited (ATCL). Specifically, this section discusses the theories and empirical studies relevant to the topic under study. The approach involves exploring the use of theories and models and their application in understanding customer satisfaction dynamics within Air Tanzania Company Limited (ATCL).

**Theoretical and Conceptual Background**

**The expectancy disconfirmation theory**

This study employed both the Expectancy Disconfirmation Theory and the AIRQUAL model. The Expectancy Disconfirmation Theory was employed due to its ability to explain how perceptions and expectations can be used to assess the service quality provided by various organizations toward customer satisfaction. Customer satisfaction holds significant importance across various sectors, playing a pivotal role in driving increased sales, fostering positive word-of-mouth, and building trust and loyalty. The Expectancy
Disconfirmation Theory, formulated by Richard L. Oliver in 1977 and 1980, asserts that consumers make purchasing decisions based on their anticipated product or service performance. In this framework, expectations serve as a benchmark for evaluating the product. Post-service usage, consumers assess outcomes by comparing them to their initial expectations. If the results align, confirmation ensues; however, misalignment triggers disconfirmation. Satisfaction is tied to how well a service aligns with expectations, influencing the overall perception of performance. This theory underscores that the relationship between expectations, perceived performance, and satisfaction is mediated by the presence or absence of disconfirmation, highlighting its relevance in understanding customer satisfaction dynamics where discrepancies between expectations and actual performance impact the level of contentment. In essence, this theory emphasizes that customer satisfaction hinges on the congruence between anticipated and actual service performance.

**AIRQUAL Model**

The research utilized the AIRQUAL Model, developed by Bari et al. (2001), to delineate the five dimensions of service quality within the airline industry. Bari’s study, conducted in North Cyprus, encompassed five dimensions: airline tangibles (reflecting the overall condition of the aircraft), terminal tangibles (evaluating the quality of services available at the terminal), personnel services (assessing the quality of service provided by the airline's staff), empathy (measuring hassle-free and problem-free experiences), and image (capturing the value of image, goodwill, and brand recognition). However, this current study focused on three specific dimensions: Airline tangibles, personal services, and image. The model variables have been used by various scholars such as (Badrillah et al., 2023; Farooq et al., 2018; Javed Ali et al., 2021; Kos Koklic et al., 2017; Wahab & Rady, 2018) in studying Airline service qualities and customer relationship management.

**Empirical Review of AIRQUAL Dimensions and Hypothesis Development**

**Airline tangibles**

Airline tangibles refer to the interior of aircraft used by airlines, the quality of in-flight food and beverages quality (catering service), the cleanliness of the plane’s toilets, the seating comfort of the plane seats, the quality of interior and exterior equipment and the quality of air-conditioning in the plane. (Ali et al. 2015; Badrillah et al., 2021).

**Terminal tangibles**

Terminal tangibles include various elements associated with the physical infrastructure and amenities at the airport (Majaliwa & Magasi, 2024). These cover considerations such as the cleanliness standards of airport toilets, the availability and variety of shops, the accessibility of parking spaces, and the overall comfort experienced in the waiting hall. Furthermore, these tangible aspects extend to the efficacy of signboards for clear guidance, the amicable nature of the security and control system, and the provision of information counters strategically positioned to assist passengers. These dimensions have been highlighted in prior research studies (Wu and Cheng, 2013; Ali et al., 2015; Badrillah et al., 2021), emphasizing their significance in shaping the overall passenger experience at airport terminals.

**Personal services**

The category of personal services in the airline industry is designed to comprehensively evaluate the conduct and performance of employees. This assessment includes factors such as the attitude, knowledge, and experience of airline staff. Moreover, personal services extend to the level of personal care demonstrated by employees toward all passengers, ensuring a welcoming and accommodating environment. The evaluation also considers the efficiency of ticketing services, emphasizing the importance of error-free transactions. Additionally, the responsiveness of aircraft crew members is taken into account, underlining the significance of prompt and effective communication. These critical dimensions contribute to the overall passenger experience, as discussed in the studies conducted by Namusaka (2013) and Badrillah et al. (2021).

**Empathy**

Empathy within the airline context pertains to several key aspects, including careful handling of luggage, ensuring punctuality in both departures and arrivals, providing courteous ticketing services, implementing considerate compensation plans in case of loss or hazards, and facilitating seamless transportation between the city and the airport. These dimensions, as highlighted in the studies by Farook (2016), Badrillah et al. (2021), and Ali (2015), collectively underscore the airline’s commitment to understanding and addressing the needs and concerns of passengers, contributing to an empathetic and passenger-centric travel experience.

**Image**

This dimension explores the comprehensive perception of airline services, covering considerations such as the perceived value for money, promotional offers, and goodwill. Additionally, it delves into the availability of low-price ticket offerings, evaluating the consistency of ticket prices with the provided services and the overall image of the airline company. As emphasized in the studies by Ekiz et al. (2006) and Badrillah et al. (2021), this dimension reflects the diverse nature of passenger perceptions, incorporating both economic considerations and the overall image projected by the airline.
Variables exclusion and inclusion criteria of AIRQUAL dimensions

In the study conducted by Ekiz et al. (2006), terminal tangibles are associated with the service quality available within a terminal setting. These tangibles include factors such as the cleanliness of airport restrooms, the presence of shops within the airport, the availability of parking spaces, the comfort of the waiting area, the effectiveness of signage, the friendliness of security and control systems, as well as information counters designed to assist passengers (Ali et al. 2015; Badrillah et al., 2021). However, it is important to note that this present study focuses exclusively on evaluating the service quality provided by ATCL, not Julius Nyerere International Airport (JNIA). As a result, terminal tangibles were not considered in this study, as they pertain to JNIA, which is beyond the scope of this research investigation. Furthermore, Ali et al. (2015) conducted a study that examined empathy as one of the fundamental metrics for evaluating personal services. In this study, empathy was identified as a critical component within the framework of measuring personal services, and it was incorporated as one of the essential dimensions in the study conducted by Ali, Dey and Filieri, R. (2015) and Javel, Abul, Ahmad, and Mohammed (2021).

Thus, this study employed only three dimensions from the AIRQUAL model, which are Airline Tangibles, Personal Services, and Airline Image, to assess the effect of service quality on customer satisfaction within ATCL. Airline tangibles covered include catering services, cabins and toilets cleanliness, seat comfort, appearance of employees, quality of air-conditioning, in-flight entertainment, and appearance of aircraft. The physical aspects of the service were chosen because they are highly visible and can significantly affect customer perceptions. Personal Services studied include employees’ responsiveness, friendliness, courtesy, knowledge and experience, empathy of the airline personnel, and employees grooming. The interactions between customers and airline employees, including responsiveness and friendliness, were selected as they play a crucial role in customer satisfaction and loyalty. Airline image research was consistent with ticket prices, airline reputation, promotion offers, availability of different classes, flight amendment, safety and security, and type of aircraft. The overall reputation and perception of the airline, including factors like ticket prices and safety, were considered because they shape customer opinions and influence their decision to fly with the airline.

Conceptual framework

A conceptual framework figure depicted in 1 has been devised to illustrate the interrelation between independent variables namely, tangible elements, personal services, and airline image and the dependent variable, customer satisfaction. Deriving insights from the AIRQUAL Model and empirical literature review, the conceptual framework Figure 1 posits assumed relationships between the specified independent variables and the dependent variable. Airline tangibles encompass the interior of the aircraft, in-flight food and beverage quality (catering service), cleanliness of the plane’s toilets, seating comfort of the plane seats, employee appearance, and the quality of interior and exterior equipment, including air-conditioning (Majaliwa & Magasi, 2024). The evaluation of this independent variable involves a comprehensive assessment of factors such as catering services, cabins and toilets cleanliness, seat comfort, the appearance of employees, and the quality of air-conditioning, as suggested by previous studies (et al., 2006; Ali et al., 2015; Farooq, 2016). Personnel services aim to assess the performance of airline employees, encompassing aspects such as employees’ attitude, knowledge, experience, personal care towards everyone, empathy, error-free ticketing service, and responsiveness of aircraft crew members. The evaluation of the independent variable “personal services” similarly considered dimensions like employees’ responsiveness, friendliness, courtesy, knowledge and experience, empathy of airline personnel, and employees’ grooming, establishing the foundational criteria for assessing personal services (Namusaka; 2013; Wu and Cheng). Airline image explores the comprehensive perception, value for money, promotional offers, goodwill, availability of low-price ticket offerings, safety and security, consistency of ticket prices with given service, and the reputation of the airline company. The evaluation of the independent variable “airline image” entailed a thorough examination of factors such as the consistency of ticket prices, airline reputation, promotion offers, availability of different classes, flight amendment policies, safety and security measures, and the type of aircraft operated by the airline (Ekiz et al., 2006; Farook, 2016; Ali, 2015). The dependent variable, customer satisfaction, was gauged through key indicators, including loyalty, repeat purchase behaviour, and positive word-of-mouth recommendations, serving as pivotal criteria for evaluating the overall satisfaction of customers in the study.

Figure 1: Conceptual framework; Source: Literature review (2023)
Based on a comprehensive review of theoretical and empirical literature, as well as the conceptual framework illustrated in Figure 1, the formulated hypotheses are as follows:

\( H_1: \) There is a significant positive relationship between airline tangibles and customer satisfaction in Air Tanzania Company Limited.

\( H_2: \) There is a significant positive relationship between personnel services and customer satisfaction in Air Tanzania Company Limited.

\( H_3: \) There is a significant positive relationship between airline image and customer satisfaction in Air Tanzania Company Limited.

**Research and Methodology**

**Research design and approach**

The study employed a cross-sectional research design, allowing for the collection of data from the study area at a single point in time, facilitating a snapshot analysis of the variables under investigation. This study employed a mixed research approach, utilizing both qualitative and quantitative methods to examine the relationship between dependent and independent variables. The use of hypotheses aligned with existing theories and empirical studies led to the adoption of a quantitative design via a survey questionnaire for data collection. Complementarily, the qualitative approach involved interviews within a small sample size to enhance understanding and gain deeper insight into the impact of service quality on customer satisfaction, thereby triangulating the findings from the quantitative design. Quantitative data were presented using statistics, while the qualitative approach focused on the qualitative aspect.

**Study area and population**

The study was conducted in Dar es Salaam at Julius Nyerere International Airport (JNIA), covering Terminals II and III as well as ATC House, with the inclusion of both domestic and international travelers. JNIA has three (3) passenger terminals, terminal one for general aviation and terminal two for scheduled domestic and international flights and terminal three for scheduled international flights. Dar es Salaam was chosen due to the airport’s prominence as the largest in Tanzania, attracting numerous customers both within and outside the country. Respondents included users of ATCL services, comprising domestic and international travelers from Terminals II and III at JNIA, and customers making bookings at ATC House in Dar es Salaam utilizing ATCL services during the data collection period from May to June in 2023.

**Sample size and sampling techniques**

The study used a sample size of 302, determined through the application of the Cochran formula designed for an unknown population. In this formula, ‘n’ represents the sample size, ‘Z’ stands for the critical value associated with a specific confidence level (e.g., 1.96 for a 95% confidence level). The variable ‘p’ signifies the proportion within the population of interest, set at 50% in this instance, while ‘q’ represents the complementary value to ‘p,’ calculated as 1 minus ‘p.’ Finally, ‘e’ represents the acceptable margin of error, conventionally set at 0.05.

\[ n = \frac{Z^2 \cdot pq}{e^2} \]

\[ n = \frac{1.96^2 \cdot 0.5 \cdot 0.5}{0.05^2} = 384 \] respondents

A sample of 384 was initially obtained using the Cochran formula, but only 302 (79.9%) questionnaires were correctly filled out and returned for data recording and analysis. The unreturned responses, constituting 20.1%, resulted from time constraints and some customers’ unwillingness or inability to complete the survey.

To collect quantitative data, a simple random sampling technique was employed to select Air Tanzania Company Limited (ATCL) customers at Terminal II and III waiting areas and those making bookings at ATC House in Dar es Salaam. The researcher randomly approached customers in these areas, requesting them to complete questionnaires, which were then returned either to ATCL staff or directly to the researcher. This approach targeted both domestic and international travelers, selected at varying times from May 2023 to June 2023 to ensure a diverse and comprehensive data collection from different customer groups.

Qualitative data for the study on the effect of service quality on customer satisfaction at Air Tanzania Company Limited (ATCL) was collected using purposive sampling. Specifically targeting ATCL officials in Dar es Salaam, particularly those at JNIA and ATC House, the sample included two supervisors from each of the call center, marketing, air ticketing, and air hostess departments. This strategic selection of supervisors, chosen for their extensive experience and expertise in customer management, aimed to ensure effective face-to-face interviews that align with the research objectives. The sample size was determined to balance the richness of information and depth of insights expected from these key stakeholders, facilitating a focused exploration of the research questions.

**Types of data collection tools**

Primary data for this study was collected through a combination of questionnaires and interviews. Questionnaires were chosen to systematically capture demographic information, including age, gender, education level, frequency of travel with ATCL, and the primary reasons for their flights. The second part of the questionnaire focused on gathering variable information related to airline
tangibles, personal services, and image, with the aim of understanding customers’ service expectations and perceptions of ATCL services. Formulated as statements, respondents rated their agreement on a five-point Likert scale, ranging from 1 for “strongly disagree” to 5 for “strongly agree.” This approach was selected to obtain comprehensive insights into customer expectations and perceptions, allowing for a nuanced understanding of the factors influencing satisfaction with ATCL services. In addition to questionnaires, interviews were conducted to gain qualitative insights into respondents’ experiences with ATCL services. These face-to-face sessions provided a deeper exploration of customer expectations and perceptions, complementing the quantitative data obtained through the questionnaires.

Data analysis

The study used both descriptive and inferential statistics. Descriptive statistics were used to describe the demographic information of respondents. Two approaches were employed for quantitative data analysis. In the first approach, service quality (SQ) was estimated by computing the difference between perceptions (P) and expectations (E), denoted as \( SQ = P - E \). To determine the index score for each dimension of SQ, the sum of \( P - E \) was divided by the number of items in that dimension. The overall SQ index score was then calculated by summing up all the dimension scores and dividing it by the total number of SQ dimensions (3 SQ dimensions).

In the second approach, a binary logistic regression model was used to assess the effect of service quality on customer satisfaction in ATCL of all the given three objectives. The mean scores from the 5 Likert scale questions on customer satisfaction were transformed into an index score to accomplish this. Subsequently, dichotomous responses for students’ satisfaction were created, where 1 represented satisfaction and 0 represented dissatisfaction. The binary logistic regression equation used for this analysis is as follows:

\[
\text{Logit} \ p = \ln p = \frac{p}{1-p} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon \\
\]

Where by:

- \( P \) = Probability of the effect of service quality on customer satisfaction
- \( Odds = p/(1-p) \) = Probability of no effect of service quality on customer satisfaction

\( \text{Logit} \ p = \) Dependent variable (Customer Satisfaction)

- \( \beta_0 \) = y - intercept (constant)
- \( \beta_1, \beta_2 \& \beta_3 \) = regression coefficients

- \( X_1, X_2 \& X_3 \) = Tangible elements, Personal services & Airline Image respectively

\( \epsilon \) = error term.

Moreover, the Statistical Package for Social Science (SPSS) Version 21 software supported to analyse the quantitative data. The study also employed a thematic approach to analyse the qualitative data collected through interviews through MAXQDA. In this approach, the respondents’ gathered responses from interview were recorded, organised, reviewed, categorised, and re-coded in MAXQDA in order to develop and explain themes do be presented in the study findings.

Findings and Discussions

Findings

Descriptive results

A descriptive analysis test was run to examine the respondents’ gender, age, education, number of times travelled using ATCL and the main reason for their flights as shown in Table 1. Out of 302 respondents, 43% of the respondents were males and 57% were females. Our respondents were mostly between the ages of 20 and 29 (33.8%), followed by those between the ages of 30 and 39 (33.4%). According to their educational background, bachelor’s degrees made up the majority (48.3%), followed by master’s degrees (19.9%). 26.5% of people only travelled once, while 46.1% travelled twice to five times. The main reasons for respondents’ flights were business (32.1) and work-related (35.8).
Table 1: Descriptive results

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Distribution</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>172</td>
<td>57.0</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>130</td>
<td>43.0</td>
</tr>
<tr>
<td></td>
<td>Below 20</td>
<td>2</td>
<td>0.7</td>
</tr>
<tr>
<td></td>
<td>Between 20-29</td>
<td>102</td>
<td>33.8</td>
</tr>
<tr>
<td></td>
<td>Between 30-39</td>
<td>101</td>
<td>33.4</td>
</tr>
<tr>
<td></td>
<td>Between 40-49</td>
<td>76</td>
<td>25.2</td>
</tr>
<tr>
<td></td>
<td>50 and above</td>
<td>21</td>
<td>7.0</td>
</tr>
<tr>
<td>Education</td>
<td>Primary</td>
<td>5</td>
<td>1.7</td>
</tr>
<tr>
<td></td>
<td>Secondary</td>
<td>22</td>
<td>7.3</td>
</tr>
<tr>
<td></td>
<td>Diploma</td>
<td>53</td>
<td>17.5</td>
</tr>
<tr>
<td></td>
<td>Bachelor’s Degree</td>
<td>146</td>
<td>48.3</td>
</tr>
<tr>
<td></td>
<td>Master’s Degree</td>
<td>60</td>
<td>19.9</td>
</tr>
<tr>
<td></td>
<td>PhD</td>
<td>16</td>
<td>5.3</td>
</tr>
<tr>
<td>Number of times</td>
<td>Once</td>
<td>80</td>
<td>26.5</td>
</tr>
<tr>
<td></td>
<td>2 to 5</td>
<td>141</td>
<td>46.7</td>
</tr>
<tr>
<td></td>
<td>6 to 10</td>
<td>57</td>
<td>18.9</td>
</tr>
<tr>
<td></td>
<td>More than 10</td>
<td>24</td>
<td>7.9</td>
</tr>
<tr>
<td>Reason</td>
<td>Work-related</td>
<td>108</td>
<td>35.8</td>
</tr>
<tr>
<td></td>
<td>Business</td>
<td>97</td>
<td>32.1</td>
</tr>
<tr>
<td></td>
<td>Tourism</td>
<td>20</td>
<td>6.6</td>
</tr>
<tr>
<td></td>
<td>Family visit</td>
<td>68</td>
<td>22.5</td>
</tr>
<tr>
<td></td>
<td>Other (Specify)</td>
<td>9</td>
<td>3.0</td>
</tr>
</tbody>
</table>

Source: Data analysis (2023)

Reliability and validity test

Reliability test

The reliability of data was computed through Cronbach’s Alpha Value which was measured through perceptions and expectations of all three dimensions namely; tangible elements, personal services and airline image. The results showed that all of the dimensions had an Alpha value above the acceptable level of 0.7. Thus, the results in Table 2 confirm that the measurement instruments for the study were reliable.

Table 2: The Cronbach’s Alpha Values

<table>
<thead>
<tr>
<th>Construct</th>
<th>Number of Items</th>
<th>Perception Cronbach’s Alpha</th>
<th>Expectation Cronbach Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tangible elements</td>
<td>9</td>
<td>0.832</td>
<td>0.836</td>
</tr>
<tr>
<td>Personal services</td>
<td>9</td>
<td>0.862</td>
<td>0.874</td>
</tr>
<tr>
<td>Airline Image</td>
<td>7</td>
<td>0.797</td>
<td>0.804</td>
</tr>
</tbody>
</table>

Source: Data analysis (2023)

Validity test

In factor analysis, the Kaiser-Meyer-Olkin (KMO) measure of sample adequacy and Bartlett’s test of sphericity were employed to determine whether the data were appropriate for this statistical method. Through the use of exploratory factor analysis, the 25 variables were reduced to 3 dimensions: tangible elements (9), personal services (9), and airline image (7). The KMO measurement assesses the appropriateness of the sample size as well as the correlation between the variables. It has a range of 0 to 1, with values closer to 1 suggesting more adequate sampling. The KMO value in Table 3 is 0.798 indicating that the correlation between the variables and sample size are both acceptable for factor analysis. Also, Bartlett’s Test of Sphericity was tested to examine whether variables are uncorrelated and unsuitable for factor analysis. The test produces an approximate chi-square value, degrees of freedom (df) and a significance level (Sig.). Table 5 shows the approximate chi-square value of 1255.663, with 21 degrees of freedom and a significance level of .000. The significant p-value (Sig.) of .000 indicates a sufficient correlation among the variables to proceed with factor analysis.
Table 3: KMO and Bartlett’s Test

| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | 0.798 |
| Bartlett’s Test of Sphericity | Approx. Chi-Square | 1255.663 |
| | Df | 21 |
| | Sig. | 0.000 |

Source: Data analysis (2023)

Tests for Assumptions of Binary Logistic Regression

Sample size adequacy

In a Binary Logistic Regression, having a large sample size is important in maintaining the accuracy and validity of the outcomes as well as for making appropriate conclusions from the research (Abdulqader, 2017). This study employed three independent variables; Tangible elements, personal services and airline image and employed a sample of 302 which is large and enough to provide adequate data needed in this study.

Multicollinearity

In a BLRM, the explanatory variables should not be highly correlated with one another to avoid multicollinearity (Senaviratna & A. Cooray, 2019). In this study, Variance Inflation Factor (VIF) values were used to test for multicollinearity. Table 4 shows the VIF values of tangible elements, personal services and images being 2.005, 2.150 and 1.774 respectively. According to Shrestha (2020), VIF scores between 1 and 5 indicate a moderate amount of relationship between the variables, whilst small VIF values connected to the variables show no collinearity problems. The values obtained are small indicating that no multi-collinearity existed in data collected.

Table 4: Variance Inflation Factor Matrix

<table>
<thead>
<tr>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tangibles</td>
<td>0.499</td>
</tr>
<tr>
<td>Personal Services</td>
<td>0.465</td>
</tr>
<tr>
<td>Image</td>
<td>0.564</td>
</tr>
</tbody>
</table>

Source: Data analysis (2023)

Goodness of fit

The binary logistic results in Table 6 revealed that the overall goodness of the model was statistically significant (p = 0.000), as indicated by the Chi-square value in the omnibus test. This significance indicates that the model predicted service quality dimensions that affected customer satisfaction in ATCL. Additionally, -2log Likelihood (-2LL) as a measure of the goodness of the logistic models with both Nagelkerke R square and Cox & Snell R square was employed by the study to show the explanatory power of the model. Cox & Snell R Square indicated a value of 0.218 as shown in Table 6 implying that the dependent variable’s variance is explained by the model to a degree of around 21.8%. Also, Nagelkerke R Square has a value of 0.300 representing the percentage of variance in the dependent variable that is explained by the model. The Nagelkerke R Square is often considered an adjusted version of the Cox & Snell R Square. In this case, the model explains approximately 30.0% of the variance in the dependent variable. Nagelkerke R squared of 0.300 indicated that the model provided a strong fit on overall prediction. Moreover, the Hosmer and Lemeshew test was also used to assess the model’s goodness of fit. A good fit of the data into the model was shown by the model’s output in Table 6, which was an insignificant (p = 0.160) χ² (3) of 11.811 for the model with all predictors. Hosmer and Lemeshew’s results which are less than 0.05 indicate a poor fit of the data in the model (Zhang et al., 2020). The significance value is greater than 0.05 and consequently, the data provided fits the model.

Perceived Service Quality in ATCL

All service quality dimensions and the overall service quality index indicated a negative score as shown in Table 5, indicating that customers’ perceptions of the service quality provided by ATCL are lower than their expectations. It is evident that the customers’ perceptions of the airline’s service quality fall short of their expectations, as indicated by the negative scores across all dimensions. This comprehensive negative score pattern suggests a general dissatisfaction among customers with the service quality provided by ATCL. Furthermore, upon further examination of the dissatisfaction levels, the ranking reveals that airline image holds the top position (-0.2275), followed closely by tangible elements (-0.3142) and personal services (-0.0646). These rankings shed light on the specific areas where customers’ dissatisfaction is most pronounced. The overall index score for service quality further supports these findings, registering at -0.3996.
Table 5: Overall Service Quality Index

<table>
<thead>
<tr>
<th>Variables</th>
<th>Variables</th>
<th>Means</th>
<th>P – E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tangible Elements</td>
<td>Tangible Elements Perception</td>
<td>4.017708</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tangible Elements Expectation</td>
<td>4.082263</td>
<td>-0.06456</td>
</tr>
<tr>
<td>Personal Services</td>
<td>Personal Services Perception</td>
<td>3.858366</td>
<td>-0.31419</td>
</tr>
<tr>
<td></td>
<td>Personal Services Expectation</td>
<td>4.172553</td>
<td></td>
</tr>
<tr>
<td>Airline Image</td>
<td>Airline Image Perception</td>
<td>3.920615</td>
<td>-0.22745</td>
</tr>
<tr>
<td></td>
<td>Airline Image Expectation</td>
<td>4.148061</td>
<td></td>
</tr>
<tr>
<td>Overall index score</td>
<td></td>
<td></td>
<td>-0.3996</td>
</tr>
</tbody>
</table>

Source: Data analysis (2023)

Binary Logistic Regression Results

The aim of this study was to assess the effect of service quality dimensions specifically tangible elements, personal services and airline image on customer satisfaction. The study assessed the relationship between each of the aforementioned AIRQUAL model dimensions with customer satisfaction and the results are findings are presented in the next subsections.

Table 6: Binary Logistic Regression Results

<table>
<thead>
<tr>
<th>Variables</th>
<th>B</th>
<th>SE</th>
<th>Sig</th>
<th>Exp (B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TANGIBLES</td>
<td>1.725</td>
<td>0.274</td>
<td>0.002</td>
<td>5.610</td>
</tr>
<tr>
<td>PERSONNALSERVICES</td>
<td>1.459</td>
<td>0.299</td>
<td>0.000</td>
<td>4.301</td>
</tr>
<tr>
<td>IMAGE</td>
<td>1.467</td>
<td>0.261</td>
<td>0.000</td>
<td>4.337</td>
</tr>
<tr>
<td>Constant</td>
<td>1.211</td>
<td>0.166</td>
<td>0.000</td>
<td>3.3358</td>
</tr>
<tr>
<td>Omnibus test – Chi-square</td>
<td>74.263 (3) (p=0.000)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hosmer and Lemeshow – v2</td>
<td>11.811(3) (p = 0.160)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cox &amp; Snell R2</td>
<td>0.218</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nagelkerke R2</td>
<td>0.300</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-2 Log Likelihood</td>
<td>317.165</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Dependent Variable; Customer Satisfaction (Satisfaction=1, Dissatisfaction=0)

Source: Data analysis (2023)

Discussion

Relationship between Tangible Elements and Customer Satisfaction

The findings indicate that the coefficient of tangible elements was positive (1.725) towards customer satisfaction and significant at (p =0.002) as shown in Table 6. The results show a significant positive relationship between tangible elements and customer satisfaction. This implies that an increase in tangible elements accounts for an increase in customer satisfaction by 1.725. These results have been supported by the odds ratio of 5.610 revealing that the likelihood of tangible elements to change customer satisfaction is by 5.6 times. From the given findings, an alternative hypothesis (H1) was accepted implying a positive significant relationship between tangible elements and customer satisfaction. These results are similar to those of (Ali Javel et al., 2021) which revealed a significant positive influence between airline tangible and customer satisfaction. Also, a study conducted by (Balinado et al., 2021) in India revealed a significant influence between taste and the quality of foods, comfortable seats, and other tangible elements on customer satisfaction. The interview responses further support these findings, with customers expressing a strong preference for aspects such as comfortable seating, the professionalism of staff grooming, and the cleanliness of the aircraft as one of the interviewees stated that:

“The majority of our customers like how comfortable the seats are, how well-groomed the staff is and how clean the aircraft is throughout. To ensure that customers enjoy their journey and enhance customer satisfaction, we try to do our best to keep the aircraft clean, together with the use of modern types of equipment.”

However, acknowledging potential limitations, such as the study’s specific geographical focus or variations in customer preferences across demographics, is crucial. Moving forward, future research could explore specific tangible elements, taking into account regional variations in preferences and expectations.
Relationship between Personal Services and Customer Satisfaction

As shown in Table 6, the coefficient of personal services is 1.459 and significant at (p =0.000), with an odds ratio value of 4.301. The findings reveal a positive significant relationship between personal services and customer satisfaction. This has also been shown by the odd ratio of 4.301 implying that the likelihood of personal services to change customer satisfaction is by 4.3 times. From these findings, an alternative hypothesis was accepted and following the fact that the coefficient of personal services was positive, personal services have a significant positive relationship with customer satisfaction as revealed by the coefficient value. These research findings are similar to those conducted by Badrillah et al. (2023) which revealed a significant influence between personal services and customer satisfaction. Upon interviews, concerns regarding responsiveness, personal care, friendliness, smartness and knowledge were addressed by most of the interviewees on the things appreciated by customers to employees. The interview responses provide rich qualitative insights, emphasizing customers’ appreciation for employees who go the extra mile in assisting them before, during, and after their flights as said by one of the interviewees:

“Customers appreciate employees who are ready to help them whenever they are faced with any problem before, during and even after their flights. Employees who are committed to their work, who speak good language and dress well are very appreciated by our customers.”

Despite these valuable contributions, acknowledging potential limitations, such as the study’s limited scope or variations in cultural expectations, is essential. Future research avenues could explore cultural nuances in customers’ expectations of personal services and the impact of specific employee behaviors on passenger satisfaction.

Relationship between Airline Image and Customer Satisfaction

The aim of this hypothesis was to test if there is a significant relationship between airline image and customer satisfaction as indicated in Table 6. Results show a significant positive relationship between airline image and customer satisfaction from the observed sig value score of p= 0.000. Airline images have a Beta coefficient value of 1.467 and an odd ratio of 4.337 implying that for one unit increase in airline image, customer satisfaction increases by 4.3. Hence, the results lead to acceptance of the alternative hypothesis. The results are similar to those conducted by (Piamsirikamol, 2022) in Thailand which revealed a significant positive relationship between airline image and customer satisfaction in the Philippines. Also, (Hasan et al., 2020) observed the same results in the study conducted in India. Interviews reveal the industry’s commitment to maintaining a positive reputation through high-quality services, safety measures, diverse seating options, and promotional initiatives as one of the interviewees responds:

“ATCL is one of the airline sectors that does all the necessary things to ensure its reputation is kept at its highest levels. It is ensured through the provision of services that are of high quality, ensuring safety, provision of different classes and providing promotion offers to make sure that what people say about ATCL is of positive impact.”

While these findings enrich our understanding, acknowledging potential limitations, such as the study’s specific geographical focus, is crucial. Future research avenues could explore the dynamic nature of airline image management in response to changing consumer expectations and technological advancements. Additionally, comparative studies across various cultural contexts could provide an understanding of the role of airline image in shaping customer satisfaction.

Summary of Binary Logistic Regression Results

The study aimed to test the significant relationship between tangible elements, personal services and airline image towards customer satisfaction, the findings revealed a significant relationship between all three dimensions as summarized in Table 7.

<table>
<thead>
<tr>
<th>S/No</th>
<th>Hypotheses Results</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>Tangible elements have a significant relationship with customer satisfaction</td>
<td>Accepted</td>
</tr>
<tr>
<td>H2</td>
<td>Personal services have a significant relationship with customer satisfaction</td>
<td>Accepted</td>
</tr>
<tr>
<td>H3</td>
<td>Airline images have a significant relationship with customer satisfaction</td>
<td>Accepted</td>
</tr>
</tbody>
</table>

This study was exclusively conducted within the confines of Air Tanzania Company Limited (ATCL) and only adopted the three dimensions from the five dimensions of the AIRQUAL Model thus this narrow scope limits the applicability of the findings and may not accurately represent the broader airline industry. The current study’s limited geographical focus on Dar es Salaam means that its findings may not adequately represent the entire customer base of the airline industry or the diversity of experiences across different regions. Conducting research in a more geographically diverse range of locations would provide a more holistic view of customer perceptions and allow for more meaningful generalizations. Also, these results might not apply to different contexts or regions due to different customer preferences, expectations and different cultural contexts. Hence, a different study that includes all the five dimensions from the AIRQUAL Model namely; tangible elements, terminal tangibles, personal services, empathy and airline image...
should be conducted in a large geographical area as this current study was only carried out in Dar es Salaam to generalize the research findings.

Conclusions

In conclusion, this study aimed to investigate the influence of service quality dimensions, including tangible elements, personal services, and airline image, on customer satisfaction within Air Tanzania Company Limited (ATCL) in Dar es Salaam. The study’s objectives were effectively tested, and the findings offer valuable insights. The analysis of perceived service quality dimensions revealed that customers’ perceptions of ATCL’s service quality fell short of their expectations, as indicated by negative scores across all dimensions. This overall negative pattern suggests a general dissatisfaction among customers with the service quality provided by ATCL. Specifically, the rankings indicated that airline image was the top contributor to dissatisfaction, followed by tangible elements and personal services. The overall index score for service quality further supported these findings, registering at -0.3996. This, in essence, brings attention to a critical area within the airline industry where the gap between customer expectations and actual service provision requires thoughtful consideration. The binary logistic regression results indicated significant positive relationships between all three dimensions (tangible elements, personal services, and airline image) and customer satisfaction. The odds ratios further illustrated the substantial impact of these dimensions on customer satisfaction, with tangible elements having the highest influence.

In summary, the study’s findings suggest that ATCL needs to focus on improving tangible elements, personal services, and its airline image to enhance customer satisfaction. The study posits a pivotal conclusion, ATCL’s imperative need to direct focused efforts toward tangible elements, personal services, and the enhancement of its airline image. This recommendation is not merely a regurgitation of industry best practices but a thoughtful synthesis of empirical findings. It is a call to action, grounded in the numerical evidence and unique dynamics uncovered within the specific context of ATCL. Nevertheless, this study contributes valuable theoretical and practical knowledge to the field of airline service quality and customer satisfaction.

To enhance customer satisfaction in Tanzania’s airline industry, the study offers recommendations for various stakeholders. The airline industry should allocate resources for improving tangible elements like seat comfort, cabin cleanliness, and catering, while also investing in staff training for better customer interactions and implementing customer relationship management systems. Policymakers are urged to establish guidelines for customer service practices and conduct regular audits to ensure compliance with quality standards, promoting competition and customer satisfaction. These measures would serve as a crucial mechanism for ensuring that airlines adhere to the prescribed standards for tangible elements and personal services. The public is encouraged to provide feedback on services, share positive experiences on social media, and engage with customer opinions, helping identify areas for innovation and ultimately elevating customer satisfaction in the industry. It needs to share pleasant airline experiences on social media and online review sites to help improve the image of the industry.

While these results provide valuable insights, it is essential to acknowledge the study’s limitations, including its narrow scope and geographic focus on Dar es Salaam. Future research in the airline industry should extend beyond the limited scope of this study, which assessed only three dimensions of the AIRQUAL model: tangible elements, personal services, and airline image and include all five dimensions. Subsequent studies could investigate all the dimensions including terminal tangibles and empathy’s impact on customer satisfaction. Additionally, research should explore specific elements within tangible aspects, personal services, and airline image that exert the most significant influence on customer satisfaction in various airline contexts. Furthermore, different studies can be conducted employing both primary and secondary data as the study at hand employed only primary data to yield richer insights. Comparative studies can be done to analyze how airline image impacts customer satisfaction in different cultural and regional contexts.

Also, expanding research to encompass a broader range of airline companies and diverse geographic locations since this study focused exclusively on ATCL and respondents from Dar es Salaam. Lastly, conducting longitudinal studies would enable the tracking of evolving trends and patterns in customer behaviour across various airline contexts.

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All authors have read and agreed to the published version of the manuscript.

Author Contributions: Conceptualization, L.L., and C.M.; methodology, L.L., and C.M.; validation, L.L.; C.M.; formal analysis, L.L. and C.M.; investigation, L.L.; resources, L.L.; writing—original draft preparation, L.L.; writing—review and editing, L.L. and C.M.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The data presented in this study are available on request from the corresponding author. The data are not publicly available due to restrictions.

Conflicts of Interest: The authors declare no conflict of interest.

References


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