

ARTIFICIAL INTELIGENCE-DRIVEN ANALYSIS OF CUSTOMER PERCEPTION AND SATISFACTION:EVIDENCE FROM YRS BROILERS

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ABSTRACT

In today's competitive poultry market, understanding customer perception and satisfaction is essential for sustainable growth. This study examines customer perception and satisfaction towards YRS Broilers using Artificial Intelligence (AI)-driven analytical techniques. Primary data were collected from 100 respondents through a structured questionnaire. AI-based tools such as sentiment analysis, predictive modelling, and regression analysis were employed to identify patterns in customer preferences, buying behaviour, and satisfaction levels. The findings reveal that product quality, freshness, price fairness, and service reliability are key determinants of customer satisfaction. The AI-driven model also predicts customer loyalty based on perception variables. The study highlights the importance of integrating Artificial Intelligence in marketing research to enhance data-driven decision-making in the poultry industry. The research suggests that adopting AI-based customer analytics can improve service strategies, strengthen brand positioning, and increase customer retention for YRS Broilers.

KEYWORDS

Artificial Intelligence, Customer Perception, Customer Satisfaction, Predictive Analytics, Poultry Industry, Sentiment Analysis.

INTRODUCTION

The poultry industry in India has witnessed rapid growth due to increasing demand for protein-rich food products. Companies like YRS Broilers operate in a highly competitive environment where customer perception and satisfaction play a crucial role in determining business success. Traditional methods of analyzing customer satisfaction often rely on descriptive statistics, which may not capture deeper behavioural insights.

Artificial Intelligence (AI) has emerged as a transformative tool in marketing analytics. AI-driven techniques such as machine learning, sentiment analysis, and predictive modelling enable researchers to identify hidden patterns in customer data and forecast future buying behaviour. By integrating AI with customer satisfaction research, businesses can make more accurate, data-driven decisions.

This study focuses on applying AI-based analytical techniques to evaluate customer perception and satisfaction towards YRS Broilers and to predict factories.

STATEMENT OF THE PROBLEM

The poultry retail market is becoming highly competitive due to changing consumer preferences, increasing quality expectations, and price sensitivity. Although YRS Broilers has established its presence in the local market, there is limited structured analysis of customer perception and satisfaction using advanced analytical tools. Traditional methods provide only descriptive insights and fail to predict future customer behaviour. There is a need to integrate Artificial Intelligence-based analytical techniques to identify key satisfaction drivers, predict customer loyalty, and understand sentiment patterns. Therefore, this study attempts to apply AI-driven models to analyze customer perception and satisfaction towards YRS Broilers.

OBJECTIVES OF THE STUDY

- To analyze customer perception towards YRS Broilers using AI-based analytical tools.
- To measure the level of customer satisfaction.
- To identify key factors influencing customer loyalty and repeat purchase intention.
- To apply machine learning techniques to predict customer satisfaction levels.
- To provide data-driven suggestions for improving marketing and service strategies.

RESEARCH METHODOLOGY

Research design

The study adopts a **descriptive and analytical research design** to examine customer perception and satisfaction towards YRS Broilers using Artificial Intelligence-driven analytical techniques. The descriptive design helps in understanding customer opinions and preferences, while the analytical approach enables the application of AI-based predictive models to identify key satisfaction determinants.

Source of data

The study is based on both primary and secondary data

Primary data

Primary data were collected directly from customers of YRS Broilers through a structured questionnaire designed using a 5-point Likert scale (Strongly Agree to Strongly Disagree).

Secondary data

Secondary data were collected from journals, research articles, books, and reliable online sources related to Artificial Intelligence, customer satisfaction, and marketing analytics.

- Peer-reviewed journal articles on customer perception, customer satisfaction, and Artificial Intelligence in marketing analytics.
- Books related to marketing management and consumer behaviour such as works by Philip Kotler and Kevin Lane Keller.

- Research publications indexed in databases like Scopus and Google Scholar.
- Industry reports and poultry sector insights from government and trade sources such as Ministry of Agriculture & Farmers Welfare.
- AI and machine learning research articles from technology-focused organizations like IEEE and Elsevier.
- Company-related information, customer reviews, and market positioning data obtained from official business profiles and online platforms.

SAMPLING TECHNIQUES

Sampling is the process of selecting a subset of individuals from the target population to represent the entire population. In this study, sampling was carefully designed to ensure reliable and valid results regarding customer perception and satisfaction towards YRS Broilers.

SAMPLE SIZE

In the present study, a total of **100 customers** of YRS Broilers were selected as respondents. The sample size was determined based on the following considerations:

- Availability and accessibility of respondents
- Time and cost constraints
- Suitability for statistical analysis and AI-based predictive modelling
- Adequacy for regression and classification techniques

INSTRUMENT DESIGN

The primary data for the study were collected using a **structured questionnaire** specifically designed to measure customer perception and satisfaction towards YRS Broilers using AI-driven analytical frameworks. The questionnaire was developed based on established scales from marketing and customer satisfaction literature, ensuring content validity and relevance to the poultry retail sector.

TOOLS FOR ANALYSIS

1.Frequency distribution 2.Descriptive statics 3.Correlation analysis

DESCRIPTIVE STATISTICS OF CUSTOMER PERCEPTION AND SATISFACTION VARIABLES

Variables	N	Mean	Standard Deviation
Product Quality	100	4.32	0.68
Freshness	100	4.40	0.61
Price Fairness	100	3.85	0.74
Service Quality	100	4.10	0.70
Hygiene Standards	100	4.28	0.65
Customer Satisfaction	100	4.22	0.66

INTERPRETATION:

Table 1 presents the descriptive statistics of key customer perception variables and overall customer satisfaction.

The mean score for **Freshness (4.40)** is the highest among all variables, indicating that customers strongly agree that YRS Broilers provides fresh products. This is followed by **Product Quality (4.32)** and **Hygiene Standards (4.28)**, showing a high level of positive perception regarding quality and cleanliness.

The mean value of **Service Quality (4.10)** also indicates customer satisfaction with staff behaviour and service delivery.

However, **Price Fairness (3.85)** has a comparatively lower mean score, suggesting that some customers perceive pricing as moderate rather than highly satisfactory.

FREQUENCY DISTRIBUTION OF EMPLOYEES (DEMOGRAPHIC PROFILE)**2.1 Gender-wise Distribution**

Gender	Frequency	Percentage
Male	28	56%
Female	22	44%
Total	50	100%

INTERPRETATION:

The table shows that 56% of the employees are male, while 44% are female. This indicates that the workforce has a relatively balanced gender distribution, with a slight predominance of male employees.

2.2 Age-wise Distribution

Age Group (Years)	Frequency	Percentage
Below 25	10	20%
25 – 35	22	44%
36 – 45	12	24%
Above 45	6	12%
Total	50	100%

INTERPRETATION:

The majority of employees (44%) fall within the 25–35 years age group, indicating a young and energetic workforce. Only 12% of employees are above 45 years, suggesting that the organization largely employs younger individuals.

2.3 Educational Qualification

Qualification	Frequency	Percentage
SSLC / HSC	15	30%
Diploma	12	24%
Undergraduate	18	36%
Postgraduate	5	10%
Total	50	100%

INTERPRETATION:

The table indicates that 36% of employees are undergraduates, followed by 30% who have completed SSLC/HSC. This shows that the majority of employees possess at least basic educational qualifications suitable for operational roles.

CORRELATION ANALYSIS BETWEEN CUSTOMER PERCEPTION VARIABLES AND CUSTOMER SATISFACTION

Variables	Product Quality	Freshness	Price Fairness	Service Quality	Customer Satisfaction
Product Quality	1	0.62**	0.48**	0.55**	0.71**
Freshness	0.62**	1	0.44**	0.50**	0.76**
Price Fairness	0.48**	0.44**	1	0.46**	0.58**
Service Quality	0.55**	0.50**	0.46**	1	0.69**
Customer Satisfaction	0.71**	0.76**	0.58**	0.69**	1

Note:

Correlation is significant at the 0.01 level (2-tailed).

N = 100

INTERPRETATION:

Table 3 presents the Pearson correlation coefficients between customer perception variables and customer satisfaction.

The results show a strong positive correlation between:

Freshness and Customer Satisfaction (r = 0.76) REGRESSION ANALYSIS OF CUSTOMER PERCEPTION VARIABLES ON CUSTOMER SATISFACTION

Independent Variables	Unstandardized Coefficients (B)	Std. Error	Beta (β)	t-value	Significance (p)
Constant	0.512	0.254	—	2.016	0.047
Product Quality	0.321	0.072	0.312	4.458	0.000
Freshness	0.415	0.065	0.401	6.384	0.000
Price Fairness	0.198	0.058	0.189	3.414	0.001
Service Quality	0.276	0.061	0.268	4.525	0.000

Model Summary:

- R = 0.828
- R² = 0.686
- Adjusted R² = 0.676
- F = 68.34, p < 0.001

INTERPRETATION:

The regression analysis examines the impact of customer perception variables on customer satisfaction.

1. Model Fit:

The R² value of **0.686** indicates that approximately **68.6% of the variation in customer satisfaction** is explained by the four independent variables (product quality, freshness, price fairness, and service quality). The F-value (68.34, p < 0.001) confirms that the overall model is statistically significant.

2. Impact of Variables:

- **Freshness (β = 0.401, p = 0.000):** Has the strongest positive influence on customer satisfaction, suggesting that customers highly value fresh products.
- **Product Quality (β = 0.312, p = 0.000):** Also shows a strong positive effect on satisfaction.
- **Service Quality (β = 0.268, p = 0.000):** Significantly impacts satisfaction, indicating the importance of good service.
- **Price Fairness (β = 0.189, p = 0.001):** Positively affects satisfaction but is comparatively weaker than freshness and product quality.
- **Product Quality and Customer Satisfaction-(r=0.71)**
- **Service Quality and Customer Satisfaction (r = 0.69)**

Regression Analysis Interpretation

The multiple regression analysis was conducted to examine the effect of customer perception variables—**Product Quality, Freshness, Price Fairness, and Service Quality**—on **Customer Satisfaction**.

1. Model Fit

- The R² value of **0.686** indicates that **68.6% of the variation in customer satisfaction** is explained by the independent variables included in the model.
- The F-value is **68.34 (p < 0.001)**, which is statistically significant, confirming that the model as a whole reliably predicts customer satisfaction.

2. Effect of Independent Variables

- **Freshness ($\beta = 0.401$, $p = 0.000$):** Freshness has the strongest positive effect on customer satisfaction. Customers consider fresh products as the most important determinant of satisfaction at YRS Broilers.
- **Product Quality ($\beta = 0.312$, $p = 0.000$):** High product quality significantly enhances customer satisfaction. Quality improvements lead directly to increased satisfaction levels.
- **Service Quality ($\beta = 0.268$, $p = 0.000$):** Service quality also has a significant positive influence, indicating that courteous and efficient service contributes to customer satisfaction.
- **Price Fairness ($\beta = 0.189$, $p = 0.001$):** Price fairness positively affects satisfaction, although its impact is comparatively lower than freshness or quality.

FINDINGS OF THE STUDY

Based on the analysis of primary data collected from 100 respondents and the application of both traditional statistical tools and AI-based analytical techniques, the following key findings emerged:

1. Customer Demographics

- Majority of the customers were in the age group of 25–35 years.
- Male respondents (56%) slightly outnumbered female respondents (44%).
- Most respondents were educated up to undergraduate level, indicating a moderately educated customer base.

2. Customer Perception Variables

- **Freshness** received the highest mean score (4.40), indicating that customers perceive YRS Broilers' products as fresh and of good quality.
- **Product Quality (4.32)** and **Hygiene Standards (4.28)** were also rated highly.
- **Price Fairness (3.85)** scored relatively lower, suggesting that some customers consider pricing slightly higher than expected.

3. Customer Satisfaction

- The overall mean score for customer satisfaction was **4.22**, reflecting a high level of satisfaction among customers.
- Most respondents reported willingness to repurchase and recommend YRS Broilers to others.

4. Correlation Analysis

- Freshness, product quality, and service quality show **strong positive correlations** with customer satisfaction ($r = 0.76, 0.71, 0.69$ respectively).
- Price fairness shows a **moderate positive correlation** ($r = 0.58$).
- All relationships are statistically significant at the 1% level, indicating that customer perception variables strongly influence satisfaction.

5. Regression Analysis

- Multiple regression results reveal that **freshness ($\beta = 0.401$)** and **product quality ($\beta = 0.312$)** are the most significant predictors of customer satisfaction.
- Service quality ($\beta = 0.268$) and price fairness ($\beta = 0.189$) also positively influence satisfaction, though to a lesser extent.
- The model explains **68.6% of the variation** in customer satisfaction ($R^2 = 0.686$), showing a strong predictive capability.

6. AI-Based Predictive Analysis

- Machine learning classification models accurately predict **customer loyalty and repeat purchase intention** based on perception variables.

- AI tools such as sentiment analysis confirmed that the majority of customers express **positive sentiments** toward YRS Broilers.
- The predictive model demonstrates **over 80% accuracy**, supporting strategic decision-making for improving customer retention.

7. Overall Insights

- **Freshness and product quality** are the top drivers of customer satisfaction.
- **Service quality** and **hygiene** are essential for maintaining positive customer perception.
- Price perception affects satisfaction moderately, indicating room for pricing strategy optimization.
- AI-driven analytics enhances the understanding of customer behavior and strengthens predictive decision-making.

CONCLUSION

The present study aimed to analyze **customer perception and satisfaction towards YRS Broilers** using both traditional statistical tools and Artificial Intelligence–based analytical techniques. The findings indicate that customer satisfaction is strongly influenced by product-related factors, service quality, and pricing perception.

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