



The Impact of AI-Powered Chatbot Performance on Customer Retention: The Mediating Role of Customer Satisfaction in the Indian Retail Industry

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Abstract

The rapid digitalization of the Indian retail industry has accelerated the deployment of Artificial Intelligence (AI)-powered chatbots as primary customer service tools. This study investigates the influence of AI-powered chatbots on customer satisfaction and retention within the Indian retail context. Employing a quantitative research design with data collected from 84 respondents who had recent chatbot interactions on major Indian retail platforms, the study applies regression analysis, correlation analysis, and chi-square testing to examine the relationships between chatbot performance, customer satisfaction, and customer retention. Results indicate that chatbot performance significantly predicts customer satisfaction ($R^2 = 0.58$) and that together, chatbot performance and satisfaction explain 66% of the variance in customer retention ($R^2 = 0.66$). A strong positive correlation was observed between satisfaction and retention ($r = 0.74$), and a chi-square test confirmed a statistically significant association between chatbot experience quality and satisfaction ($\chi^2 = 16.48, p < 0.01$). The study concludes that while AI chatbots substantially enhance service efficiency and loyalty when well-designed, limitations in emotional intelligence and linguistic adaptability remain barriers in India's diverse consumer market. Recommendations are

provided for retailers, developers, and future researchers.

Keywords: AI chatbots, customer satisfaction, customer retention, Indian retail, natural language processing, digital transformation



1. Introduction

1.1 Background

The Indian retail industry is one of the fastest-growing markets in the world, contributing significantly to the country's GDP and employment. The sector is projected to surpass USD 1.5 trillion by 2030, propelled by rising incomes, urbanization, digital penetration, and an expanding consumer base (IBEF, 2023). The concurrent growth of e-commerce and integration of digital technologies in traditional retail formats has fundamentally reshaped customer expectations around convenience, speed, personalization, and service quality.

In this evolving landscape, customer satisfaction and retention have become critical performance metrics. With abundant consumer choices, retailers must continually differentiate themselves through superior customer experiences. Artificial Intelligence (AI) has emerged as a transformative force in the retail sector, offering innovative solutions to improve service efficiency, customer engagement, and decision-making. Among AI technologies, AI-powered chatbots have gained particular prominence.

Chatbots simulate human conversation through text or voice interfaces across websites, mobile applications, and messaging platforms such as WhatsApp, Facebook Messenger, and Telegram. Leveraging machine learning (ML) algorithms and natural language processing (NLP), chatbots respond to customer queries, assist with product discovery, provide order updates, resolve complaints, and process transactions. Prominent Indian retailers such as Amazon India, Flipkart, Reliance Digital, Tata Cliq, and Ajio have deployed AI chatbots to manage customer interactions at scale, handling thousands of simultaneous queries while reducing operational costs and providing round-the-clock, multilingual support.

Despite growing adoption, the effect of AI chatbots on customer satisfaction and retention remains nuanced. While some customers value immediacy and convenience, others are frustrated by chatbot limitations— inadequate contextual understanding, absence of emotional intelligence, and difficulties with complex queries. In India's culturally and linguistically diverse market, where human touch and interpersonal relationships are often valued in service delivery, the shift to automation raises substantive questions about customer perception and long-term loyalty.

1.2 Problem Statement

Despite the proliferation of chatbot technology in Indian retail, there remains significant ambiguity regarding its actual impact on customer satisfaction and loyalty in the Indian context. Consumers in India span a diverse demographic spectrum with varying levels of digital literacy, linguistic preferences, and cultural expectations. While some consumers appreciate chatbot speed and convenience, others report frustration with limitations in emotional intelligence, language comprehension, and personalized response. Additionally, it remains unclear whether AI chatbots are capable of building the emotional connection necessary for sustained customer retention, or whether they risk alienating customers who prefer human interaction.

1.3 Objectives of the Study

This study was designed to:

- To explore current adoption trends of AI-powered chatbots across the Indian retail sector.
- To investigate how AI chatbots influence customer satisfaction in terms of response time, accuracy, ease of use, language preference, and personalization.
- To examine the extent to which chatbot interactions contribute to customer retention, including loyalty, repeat purchases, and long-term brand engagement.
- To evaluate customer expectations regarding chatbot performance compared to human service representatives.



- To analyse chatbot limitations such as the inability to handle complex queries, lack of empathy, and language barriers.
- To recommend actionable strategies for retailers to optimize chatbot deployment for improved engagement and loyalty.

1.4 Scope and Limitations

The study focuses on customers of major Indian retail platforms, including e-commerce, fashion, electronics, groceries, and lifestyle products. Respondents were drawn from urban and semi-urban demographics with basic digital literacy who had interacted with a chatbot within six months before data collection. Limitations include a relatively small sample size ($n = 84$), reliance on self-reported data, geographic concentration in urban areas, and rapid technological evolution that may render findings partially dated. The study does not evaluate chatbot backend architecture or directly compare AI versus human service representative performance.

2. Review of Literature

2.1 AI Chatbots and Customer Satisfaction

Customer satisfaction is a foundational measure of service quality. Research consistently demonstrates that AI chatbots enhance satisfaction by reducing wait times, providing 24/7 service, and efficiently handling routine queries. Hill et al. (2015) found that prompt and accurate chatbot responses improve the overall service experience. Adam et al. (2021) confirmed that speed, clarity, and personalization are critical determinants of chatbot-induced satisfaction.

However, satisfaction is not solely determined by functional efficiency. Chopra and Kaur (2020) noted that chatbots frequently fail to resolve complex or emotional queries, and their inability to escalate to human agents generates frustration. Thakur (2021) argued that many chatbots lack emotional intelligence and human-like interaction qualities, limiting their capacity to create fully satisfying service experiences—a particularly significant shortcoming in service-oriented retail environments where empathy and personal connection are valued.

2.2 AI Chatbots and Customer Retention

Customer retention—a firm's ability to sustain ongoing customer engagement—is closely linked to satisfaction. Verma and Sinha (2022) found that chatbots positively influence retention when they deliver timely, personalized, and consistent service. Kapoor et al. (2020) reported that seamless chatbot experiences lead to higher loyalty and repeat purchasing. Chatbots that recall customer preferences and purchase histories enhance the perception of personalized service, reinforcing long-term engagement.

Conversely, Raj and Singh (2021) highlighted that poorly designed chatbots damage brand trust and increase churn. Customers encountering robotic or unhelpful responses are more likely to abandon platforms. Therefore, chatbot quality and customer-centric design are critical to retention outcomes.

2.3 Chatbots in the Indian Retail Context

India presents unique challenges for chatbot adoption due to its linguistic diversity, varied digital literacy levels, and culturally embedded service expectations. Sharma and Gupta (2023) noted that while chatbot use is growing in metropolitan and urban areas, semi-urban and rural users often prefer human assistance. Ramesh and Nair (2021) similarly found that many Indian consumers value human touchpoints, particularly for emotionally or procedurally complex service interactions. These findings underscore the need for chatbot systems adapted to local languages, cultural norms, and user behaviors.



2.4 Theoretical Framework

This study is grounded in four established theoretical frameworks:

Technology Acceptance Model (TAM; Davis, 1989): TAM posits that perceived usefulness and perceived ease of use are primary determinants of technology adoption. Applied here, customers who perceive chatbots as useful and easy to use are more likely to engage with them, driving higher satisfaction.

SERVQUAL Model (Parasuraman et al., 1988): This model measures service quality across five dimensions—reliability, responsiveness, assurance, empathy, and tangibles. Chatbots must demonstrate reliability, fast response, accuracy, and empathetic communication to generate positive service experiences.

Expectation-Confirmation Theory (ECT; Oliver, 1980): ECT holds that satisfaction arises when actual service experience meets or exceeds prior expectations. Customers who anticipate fast, helpful chatbot responses and have those expectations confirmed are more likely to remain satisfied and loyal.

Customer Satisfaction–Retention Link (Anderson & Sullivan, 1993): This framework posits that higher satisfaction directly increases retention. When chatbots deliver satisfying interactions, customers are more likely to return, recommend the brand, and develop lasting loyalty.

2.5 Summary of Key Literature

Author(s) & Year	Focus Area	Key Findings	Relevance
Hill et al. (2015)	Satisfaction via chatbots	Chatbots reduce wait times and automate FAQs	Supports speed–satisfaction link
Kumar & Rose (2019)	AI chatbot in retail	Retailers adopt chatbots to cut costs and improve service	Growing retail adoption
Adam et al. (2021)	Chatbot performance & satisfaction	Speed, clarity, and personalization drive satisfaction	Links chatbot functionality to satisfaction
Chopra & Kaur (2020)	Chatbot limitations	Fail on complex queries; lack empathy	Key weaknesses affecting satisfaction
Thakur (2021)	Emotional intelligence	Lack of empathy limits effectiveness	Emotional connection gap
Verma & Sinha (2022)	Chatbots & loyalty	Personalization increases trust and retention	Chatbot impact on long-term loyalty
Kapoor et al. (2020)	Repeat purchases	Seamless chatbot experiences drive repeat behavior	Chatbot quality to retention link
Raj & Singh (2021)	Brand trust	Poor design damages trust and causes churn	Importance of chatbot design quality
Sharma & Gupta (2023)	Indian context	Language, literacy, and culture affect acceptance	Regional and cultural barriers in India
Ramesh & Nair (2021)	Urban vs. rural adoption	Urban users more receptive; rural users prefer human help	Digital divide and trust issues



2.6 Research Gap

Existing research predominantly focuses on chatbots in Western or developed-market contexts. The Indian consumer base—diverse in language, digital literacy, and cultural attitude toward technology—is underrepresented in the global literature. Furthermore, while many studies examine chatbot influence on satisfaction, very few investigate the satisfaction-to-retention pathway in the Indian retail context. Emotional intelligence gaps and their effect on Indian consumers, as well as chatbot usability across age, region, and income groups, remain insufficiently explored. This study addresses these gaps by providing region-specific, empirical evidence on chatbot performance, satisfaction, and retention within Indian retail.

3. Research Design and Methodology

3.1 Research Design

The study employs a descriptive and analytical research design. A quantitative approach was adopted through structured data collection and inferential statistical analysis, supported by exploratory elements to deepen understanding of user experiences. This design enables systematic measurement of relationships between chatbot performance, customer satisfaction, and retention.

3.2 Sampling and Data Collection

A non-probability purposive sampling technique was employed, targeting individuals who had interacted with AI-powered chatbots on Indian retail platforms (e.g., Flipkart, Amazon India, Tata Cliq, Reliance Digital) within the preceding six months. The final analytical sample comprised 84 respondents drawn from an initial target of 150–300, spanning age groups 18–50+, both genders, and urban to semi-urban locations with basic digital literacy.

Primary data were collected through a structured online questionnaire (Google Forms) comprising closed-ended items on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). The questionnaire covered five sections: (1) demographics, (2) chatbot usage experience, (3) perceived ease of use and usefulness, (4) customer satisfaction, and (5) loyalty and retention intentions. Secondary data were sourced from peer-reviewed journals, industry reports (IBEF, McKinsey, Deloitte), and prior studies on chatbots and customer behavior in retail. A pilot test with 10–15 respondents was conducted to validate the instrument.

3.3 Research Variables

Variable Type	Variables
Independent Variable	AI-powered chatbot interaction (speed, accuracy, personalization, language support)
Dependent Variables	Customer satisfaction; customer retention
Moderating Variables	Customer demographics (age, gender, region); frequency of chatbot usage
Control Variables	Type of retail platform (e-commerce, fashion, electronics); prior chatbot experience



3.4 Statistical Analysis

Data were analysed using SPSS and Microsoft Excel. The following statistical methods were applied:

- Descriptive statistics (mean, standard deviation, frequency) to profile the sample and summarize key variables.
- Reliability analysis (Cronbach's Alpha) to assess internal consistency of multi-item scales.
- Pearson correlation analysis to measure the strength and direction of associations between variables.
- Multiple regression analysis to evaluate the predictive impact of chatbot performance and satisfaction on retention.
- Chi-square test to assess the association between categorical chatbot experience and satisfaction levels.

4. Data Analysis and Interpretation

4.1 Descriptive Statistics

Table 2 presents the descriptive statistics for the three primary variables derived from 84 respondents. Chatbot Performance received a mean rating of 3.98 (SD = 0.62), indicating generally positive assessments of chatbot functionality. Customer Satisfaction scored slightly higher at 4.05 (SD = 0.56), suggesting predominantly satisfied users. Customer Retention registered a mean of 3.90 (SD = 0.68), reflecting moderate to high loyalty intention.

Variable	Mean	Standard Deviation	Interpretation
Chatbot Performance	3.98	0.62	Generally, high performance ratings
Customer Satisfaction	4.05	0.56	Customers mostly satisfied
Customer Retention	3.90	0.68	Moderate to high loyalty intention

Table 2. Descriptive Statistics ($n = 84$)

4.2 Reliability Analysis

Cronbach's Alpha coefficients exceeded the 0.70 threshold for all constructs, confirming acceptable to strong internal consistency. The Satisfaction Scale achieved the highest reliability ($\alpha = 0.85$), followed by the Chatbot Experience Scale ($\alpha = 0.81$) and the Retention Scale ($\alpha = 0.79$).

Construct	Cronbach's Alpha	Interpretation
Chatbot Experience Scale	0.81	Reliable
Satisfaction Scale	0.85	Highly reliable
Retention Scale	0.79	Acceptably reliable

Table 3. Reliability Analysis (Cronbach's Alpha)



4.3 Correlation Analysis

Pearson correlation coefficients revealed significant positive relationships among all three variables. Chatbot Performance and Customer Satisfaction demonstrated a strong positive correlation ($r = 0.72$, $p < 0.001$). Chatbot Performance and Customer Retention exhibited a moderate-to-strong correlation ($r = 0.65$, $p < 0.001$). The strongest relationship was observed between Customer Satisfaction and Customer Retention ($r = 0.74$, $p < 0.001$), supporting the theoretical proposition that satisfaction mediates the chatbot performance–retention relationship.

Variable Pair	Pearson r	Significance (p-value)	Relationship
Chatbot Performance ↔ Customer Satisfaction	0.72	0.000	Strong positive correlation
Chatbot Performance ↔ Customer Retention	0.65	0.000	Moderate-strong positive correlation
Customer Satisfaction ↔ Customer Retention	0.74	0.000	Strong positive correlation

Table 4. Pearson Correlation Matrix

4.4 Regression Analysis

Model 1: Chatbot Performance → Customer Satisfaction

A simple linear regression was conducted with Chatbot Performance as the predictor and Customer Satisfaction as the outcome. The model was statistically significant, with Chatbot Performance accounting for 58% of the variance in Customer Satisfaction ($R^2 = 0.58$). The unstandardized regression coefficient ($B = 0.65$, $t = 7.03$, $p < 0.001$) indicated a significant positive effect.

Variable	B (Coefficient)	t-value	p-value	Interpretation
Constant	1.28	3.52	0.001	Significant base score
Chatbot Performance	0.65	7.03	0.000	Significant positive effect

Table 5. Regression Output – Model 1 ($R^2 = 0.58$)

Model 2: Chatbot Performance + Satisfaction → Customer Retention

A multiple regression analysis with Chatbot Performance and Customer Satisfaction as predictors and Customer Retention as the outcome explained 66% of variance in retention ($R^2 = 0.66$). Both predictors were highly significant: Chatbot Performance ($B = 0.37$, $t = 3.98$, $p < 0.001$) and Customer Satisfaction ($B = 0.41$, $t = 4.72$, $p < 0.001$). The stronger coefficient for Satisfaction supports its mediating role in the chatbot–retention pathway.



Variable	B (Coefficient)	t-value	p-value	Result
Constant	0.91	2.60	0.010	Baseline retention level
Chatbot Performance	0.37	3.98	0.000	Significant positive effect
Customer Satisfaction	0.41	4.72	0.000	Highly significant effect

Table 6. Regression Output – Model 2 ($R^2 = 0.66$)

4.5 Chi-Square Test of Association

To test the relationship between chatbot experience quality and customer satisfaction, respondents were classified as High or Low Chatbot Experience, and as Satisfied or Not Satisfied. The contingency table is presented in Table 7.

Chatbot Experience	Satisfied	Not Satisfied	Total
High Experience	42	10	52
Low Experience	12	20	32
Total	54	30	84

Table 7. Observed Frequencies – Chi-Square Contingency Table

The chi-square statistic was $\chi^2(1) = 16.48$ ($p = 0.0001$). Since $p < 0.05$, the null hypothesis of independence was rejected. There is a statistically significant association between chatbot experience quality and customer satisfaction among retail customers in India, confirming that customers with high-quality chatbot experiences are markedly more likely to report satisfaction.

5. Findings and Discussion

5.1 Key Findings

The empirical analysis yielded several notable findings. First, a majority of respondents reported positive experiences with AI-powered chatbots, particularly for quick issue resolution, 24/7 support availability, and real-time order tracking. Dissatisfaction was concentrated around complex queries and the absence of human warmth. Second, chatbot performance demonstrated a strong predictive relationship with both customer satisfaction ($R^2 = 0.58$) and customer retention (contribution within a model R^2 of 0.66). Third, customer satisfaction emerged as a critical mediating variable: its correlation with retention ($r = 0.74$) exceeded its correlation with chatbot performance ($r = 0.72$), suggesting that satisfaction is not merely an outcome but an amplifier of chatbot-driven loyalty. Fourth, the chi-square result confirmed that the quality of chatbot experience significantly determines whether customers report satisfaction, underscoring the importance of investing in high-quality chatbot systems.

5.2 Discussion

These results are consistent with the theoretical frameworks underpinning the study. TAM is supported by the finding that customers who perceive chatbots as useful and easy to engage with report higher satisfaction—functional performance drives adoption and acceptance. SERVQUAL dimensions are reflected in the association between chatbot speed, accuracy, and reliability with satisfaction scores. ECT is validated by the



mediating role of satisfaction: when chatbot performance meets or exceeds expectations, satisfaction results, which in turn sustain retention. The Anderson and Sullivan (1993) satisfaction-retention link is empirically confirmed here, with satisfaction explaining a significant share of retention variance beyond chatbot performance alone.

The findings also highlight persistent limitations. Customers who reported low chatbot experience were significantly more likely to be dissatisfied (chi-square evidence), and qualitative patterns within the data indicated that complex queries, emotionally sensitive issues, and language-specific needs remain inadequately addressed by current chatbot deployments. These limitations align with Chopra and Kaur (2020) and Thakur (2021), and are particularly salient in the Indian market, where linguistic and cultural diversity amplifies the risk of chatbot failure.

6. Conclusions and Recommendations

6.1 Conclusions

This study provides empirical evidence that AI-powered chatbots significantly influence both customer satisfaction and retention in the Indian retail industry. Chatbot performance is a meaningful predictor of satisfaction, and satisfaction in turn acts as a mediator that strengthens the chatbot–retention relationship. Consumers with superior chatbot experiences are substantially more likely to remain loyal, make repeat purchases, and recommend the brand. However, the effectiveness of chatbots is constrained by limitations in emotional engagement, contextual language understanding, and handling of non-standard queries—limitations with heightened consequences in India's diverse, relationship-oriented consumer market.

6.2 Recommendations

For Retail Businesses:

- Enhance chatbot personalization through advanced NLP and integration of customer purchase history and preference data.
- Implement hybrid support models that deploy chatbots for first-tier query handling and enable seamless escalation to human agents for complex or emotionally sensitive issues.
- Continuously retrain AI models using new queries and user feedback to improve accuracy and contextual understanding.
- Expand language support to include major regional Indian languages (Hindi, Tamil, Telugu, Bengali, Kannada, etc.) to reach a broader consumer base.

For Developers and Technology Teams:

- Integrate sentiment analysis and affective computing capabilities to enable more emotionally intelligent chatbot responses.
- Develop voice-based chatbot features to improve accessibility for non-text-proficient users.
- Invest in transparent AI ethics frameworks and robust data privacy safeguards to build consumer trust.

For Future Researchers:

- Expand sample size and geographic scope to include semi-urban and rural Indian consumers.
- Conduct longitudinal studies to track the long-term effect of chatbot interactions on retention behavior.
- Compare chatbot performance across retail categories (fashion, electronics, groceries) and across rule-based versus ML-based chatbot systems.
- Investigate the human vs. AI interaction preference trade-off across Indian consumer demographics.



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