Research Article

An investigation of the factors leading to customer satisfaction with online food delivery services in India

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ABSTRACT

Online food delivery services in India have become a billion-dollar industry. Food delivery giants like Zomato, Swiggy and Uber Eats have revolutionized online food delivery. Earlier, food ordering was confined to individual restaurants taking orders over the phone or through websites and delivering to addresses through their workforce. Today, over 95 % of orders are placed on apps and delivered through a network of delivery agents on the payroll of these food delivery agencies. There is plenty of research into why people order food online and choose one service provider over another. However, there needs to be more research on factors whose presence or absence affect customer satisfaction, and whether this customer satisfaction affects the intention to order food online. This research used the Unified Theory of Acceptance and Use of Technology (UTAUT) to investigate factors responsible for customer satisfaction with online food delivery services in India. A comprehensive survey was conducted on 514 participants. The study found evidence for the impact of customer services, delivery personnel behaviour, and online payment security on customer satisfaction, which in turn, affected the intention to order online food. These are essential organisational factors that users are likely to compare when choosing between online food delivery companies.

INTRODUCTION

Online food delivery services are currently extremely popular in India. The annual revenue runs into billions of dollars and as such, is considered an extremely lucrative market. A large population base (number one in the world), the rise of the Indian middle class, plenty of spare income, and a growth in women's employment, led to a rise in demand for readymade food. Food delivery service companies such as Zomato and Swiggy saw a tremendous opportunity and offered to deliver food to people's doorsteps. One of the primary reasons for this spike in the growth of this industry is the everywhere, everyplace availability of the Internet, and low-price smart phones.

Due to the still untapped potential of this industry, researchers have been interested in examining the factors affecting the companies' working, peoples' preferences worldwide, and the positive or negative impact these have on the traditional food industry, such as restaurants and roadside stall for street food. However, there is scarce research on the factors responsible for customer satisfaction, especially in the Indian setting. The rapid growth of the internet and the ubiquity of smart phones have revolutionised how consumers access and order food in India. Online food ordering platforms have become increasingly popular, providing convenient and efficient access to various culinary options (Sharma, 2023).

The convenience of these platforms has made them particularly appealing to younger generations, who can easily browse menus, place orders, and track their deliveries without the need for face-to-face interactions (Poon & Tung, 2024; Rahmanet al., 2022). The mobile-friendly interfaces of these platforms have also given restaurants an advantage in delivering orders quickly to customers (Shroff et al., 2022).

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The COVID-19 pandemic has further accelerated the shift towards online food ordering, as consumers have sought to minimise in-person interactions and maintain social distancing (Hossain et al., 2022). This has presented both challenges and opportunities for the food industry, with businesses needing to adapt their operations to cater to the growing demand for online ordering and delivery services (Marchesi & McLaughlin, 2023).

As the online food ordering landscape continues to evolve, researchers and industry stakeholders must understand the factors that drive consumer adoption and the broader implications for the food industry in India (Belia et al., 2023; Shroff et al., 2022). Ongoing research in this field can help inform the development of policies and strategies that support the sustainable growth of the online food delivery sector while also addressing potential concerns related to the environment, nutrition, and labour conditions (Meemken et al., 2022). This research aims to investigate empirically the factors that affect customer satisfaction when people order food online and the impact of such satisfaction on futuristic intentions to continue using the service.

Literature Review

The rapid growth of the online food ordering industry has undoubtedly transformed how we access and consume food, offering consumers greater convenience and a more comprehensive range of dining options at their fingertips. However, despite the widespread adoption of these platforms, significant research gaps warrant further exploration. A need is felt to understand the factors influencing consumer adoption and loyalty to online food ordering platforms. While some studies have explored the determinants of behavioural intention, such as perceived convenience, service quality, and value (Bonfanti et al., 2023), more research is needed to uncover the nuanced drivers of consumer decision-making in this rapidly evolving market.

Previous studies have found that online food ordering is perceived as easy, inexpensive, and simple to use. Consumers appreciate the ability to view their favourite dishes at any time and the option to place orders conveniently (Chowdhury, 2023). Moreover, the flexibility of ordering food outside of business hours has been identified as a critical benefit of online food ordering (Meena & Kumar, 2022).

Existing scholarship in this area comprises research from user perspectives in other countries. One of the earliest works looking into online food delivery was by Alagoz and Hekimoglu (2012), who applied the Technology Acceptance Model (TAM) to study usefulness and perceived ease of use as the factors affecting consumer behaviour in Jordan. In similar works, researchers studied online food delivery systems from Turkey and China, and ease of use was the most critical determinant guiding consumer behaviour. The Chinese study also compared the

behaviours in single-person households vs multi-people households and found evidence that single people were more likely to order online food as compared to those living in families (Poon & Tung, 2024).

Alalwan (2020), in his study in Jordan, found evidence for the critical nature of online reviews and ratings and tracking on consumers' choice of online food delivery service. All these studies contributed significantly to the issues of factors contributing to customer satisfaction, thereby resulting in the selection of appropriate online food delivery services.

While many studies on online food delivery services exist, those are primarily in other countries. There is a gap to be filled by conducting research looking at the Indian perspective, investigating all pertinent factors that contribute to customer satisfaction, and these factors as important considerations leading to the selection of appropriate online food delivery service from the existing alternatives.

Theoretical Framework

Over the years, researchers have used diverse theories to investigate the use of mobile applications for online businesses in various industries, such as TAM for information search on hotels and prospect theory for hotel booking. Some studies looking into mobile applications for online bookings and payments have used UTAUT, for instance, in the hotel industry, airline reservations and restaurant bookings. Proposed by Venkatesh et al. (2003), UTAUT is fundamentally based on the Technology Acceptance Model (Davis, 1986), Theory of Planned Behaviour (Ajzen, 1991) and Technology Acceptance Model 2 (Venkatesh & Davis, 2000).

UTAUT proposes the following four main factors or determinants impacting technology acceptance or intention and usage: Performance expectancy, effort expectancy, social influence, and facilitating conditions. This research aims to investigate the presence of factors besides those already given and their impact on customer satisfaction. This research also aims to investigate if the resulting customer satisfaction impacts the intention to order food online. UTAUT has been found to predict technology use and acceptance with approximately 70 % accuracy (Venkatesh *et al.,* 2003). It is one of the most comprehensive models investigating the acceptance of information technologies and intentions for future use. The UTAUT model is quite popular among researchers looking into the field of online food delivery services (e.g., Agarwal & Sahu, 2021; Alalwan, 2020; Karulkar et al., 2019).

Based on the gaps identified, the following research objective (RO) was designed.

To identify factors leading to customer satisfaction with online food delivery services.

Towards the investigation of this RO, four hypotheses were formulated and tested (Table 1).

Table 1: Research Areas and Hypotheses

S. No.	Construct/Research Area	Hypothesis
1	Customer services	**H01:** There is no significant impact of customer service performance on customer satisfaction with online food delivery services. **$H_1$1:** There is a significant impact of customer serviceperformance on customer satisfaction with online food delivery services.
2	Delivery personnel behaviour	**$H_0$2:** There is no relationship between delivery person's behaviour and customer satisfaction with online food delivery. **$H_1$2:** There is a relationship between delivery person's behaviour and customer satisfaction with online food delivery.
3	Online payment security	**$H_0$3:** The impact of secure online transactions on customer satisfaction with online food delivery services is not significant. **$H_1$3:** The impact of secure online transactions on customer satisfaction with online food delivery services is significant.
4	Customer satisfaction and intention to order online food.	**$H_0$4:** There is no significant difference in the relationship between customer satisfaction and intention to use online food delivery among Zomato, Swiggy and Uber Eats customers. **$H_1$4:** There is a significant difference in the relationship between customer satisfaction and intention to use online food delivery among Zomato, Swiggy and Uber Eats customers.

Research Methodology

The choice of data collection technique depends on the research question, the characteristics of the population or sample, the available resources, and the desired level of precision and generalisability(Taherdoost, 2021). For this research, the Indian population itself was very large, resulting in the need for a big sample size. Additionally, the characteristics of the sample, and time and financial constraints meant that survey was the best available option. Therefore, for this research, survey was chosen as the data collection technique. This research employed a simple random sampling technique where each member of the population has an equal probability of being selected (Makwana et al., 2023). Simple random sampling is one of the most basic and widely used techniques for selecting a sample from a population. This method is preferred for its ease of use and ability to provide an unbiased representation of the population (Taherdoost, 2021). By randomly selecting individuals or items from the larger group, researchers can minimise the risk of introducing any systematic bias into their sample (Makwana et al.,

2023). This method is suitable when the population is homogeneous and there are no specific subgroups to consider. For this research, the population was homogeneous in the sense that it involved units who were either ordering online food delivery or traditional. There were no subgroups or strata to look at. The survey was sent randomly to over 3,000 people, and a total of 514 responses were received, which is a return rate of just over 17%. A Likert-based survey instrument comprising 18 questions was developed. It comprised four sub-scales: customer services, delivery personnel behaviour, online payment security, and intention to order online. The correlation coefficient values among these three constructs were calculated using Cronbach's alpha (Table 2).

The value was above .70 for all the constructs, indicating that the construct is reliable (de Vaus, 1996), thereby confirming that the questions within the constructs all measure the same concept. The correlations were found to be in the expected direction in light of the hypotheses formulated for this study. For instance, a positive correlation was found between customer service

Table 2: Constructs Correlationship

S. No.	Construct	M	SD	1	2	3	4
1	Customer Services	4.18	.42	(.78)			
2	Delivery Personnel Behaviour	4.24	.53	.43*	(.84)		
3	Online Payment Security	4.02	.39	.57**	.38*	(.73)	
4	Intention to Order Online	4.22	.49	.64**	.48*	.41*	(.71)

N = 514
* Correlation is significant at $p < .05$ level (2-tailed)
** Correlation is significant at $p < .01$ level (2-tailed)
Cronbach's alpha in the matrix diagonal

performance and behaviour intention to buy. Similarly, secure online transactions and behaviour intention were found to have a high positive correlation. A one-sample t-test was used to test the first three hypotheses and a one-way ANOVA for the fourth hypothesis.

Data Analysis

In the first section of the questionnaire, participants were required to provide some demographic information such as age, gender, and marital status.

Demographic Information

Table 3 provides demographic data collected from participants. The information was analysed to ensure that the sample truly represented the population.

The first step involved was to check whether, for the demographic elements, the collected sample was a good representative of the overall characteristics of the population. The sample was represented by 52 % male and 48 % female respondents, about the same ratio as that in India. In the same way, the 'educational qualification' factor was found to be represented by four categories: school education, graduate, postgraduate, and above postgraduate. In the age variable, the maximum representation was that of the 21-30 age group (37 %), followed by the 31-40 age group (28 %) and below 20 (15 %). A further analysis of the demographic data found that 91 % of the 21-30 age group were single. These findings indicate that young single adults are most likely to order food. Interestingly, about 53 % of these young adults were males and 47 % were females.

These findings imply that even young women are slightly behind their male counterparts when ordering food online. Even in the 31-40 age group, females were about 44 %, compared to 56 % of males. However, the 21-30 age group comprised only about 38% females.

For the marital status variable, 65% of the participants were married, and the remaining 35% were single.

In the educational qualification category, the majority of the participants were postgraduates (36 %), followed by graduates (27%) and above graduates (20%).

Among the postgraduates, 54% were females and 46% males, while among the graduates, it was 51% females and 49% males. These figures indicate that females are slightly above their male counterparts regarding higher education. From the findings, graduates and postgraduates are more into online food ordering than the school-going population. One of the reasons could be the availability of disposable income for graduates and postgraduates, which might be different for school-going kids.

Most participants were found to be using either Zomato (39%) or Swiggy (36%), with these two service providers accounting for 75% of the market share. Uber Eats was at 14%, followed by Food Panda at 6 % and Dunzo at 5%.

Table 3: Demographic Information

Gender	N	%
Male	269	52.33%
Female	245	47.67%
Age	N	%
20 or below	76	14.79%
21-30	188	36.58%
31-40	143	27.82%
41-50	67	13.04%
Above 50	40	7.78%
Marital Status	N	%
Married	180	35.02%
Single	334	64.98%
Educational Qualification	N	%
School education only	83	16.15%
Graduate	139	27.04%
Postgraduate	186	36.19%
Above postgraduate	106	20.62%
Occupation	N	%
Student	195	37.94%
Employed	127	24.71%
Unemployed	21	4.09%
Business	132	25.68%
Homemaker/ Housewife	39	7.59%
Online food delivery partner	N	%
Swiggy	183	35.60%
Zomato	201	39.11%
Uber Eats	73	14.20%
Food Panda	33	6.42%
Dunzo	24	4.67%
Others	0	0.00%

Hypothesis 1

This hypothesis aimed to examine whether customer satisfaction was affected by the customer service function of online food delivery services.

- **H_01:** There is no significant impact of customer service performance on customer satisfaction with online food delivery services.
- **H_11:** There is a significant impact of customer service performance on customer satisfaction with online food delivery services.

There was a statistically significant difference in *the impact of customer service;* t(514) = -1.126, *p* = .264, on customer satisfaction (Table 4).

Table 4: One Sample t Test for Impact of CustomerService Performance on Customer Satisfaction

	Levene's Test for Equality of Variances		t-test for Equality of Means							
									95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference		Lower	Upper
EVA	1.821	.01	0.287	513	.01	1.61900	1.20163		2.61095	1.31265
EVNA			0.281	514.215	.01	1.61900	1.20163		2.61095	1.21195

Table 5: One-sample t-Test for the impact of Delivery Person'sBehaviour on Customer Satisfaction

	Levene's Test for Equality of Variances		t-test for Equality of Means							
									95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference		Lower	Upper
EVA	2.695	.02	1.218	513	.02	1.41500	1.36189		2.32218	1.78645
EVNA			1.231	514.185	.03	1.41500	1.36189		2.32218	1.41239

Since the value of p is less than .05, it can be inferred that there is a statistically significant difference between the two groups, and so, the null hypothesis, $H_0 1$:*There is no significant impact of customer service performance on customer satisfaction with the online food delivery services*, is rejected, and the alternate hypothesis, $H_1 1$:*There is a significant impact of customer service performance on customer satisfaction with the online food delivery services*, is accepted. The mean value for the group (M = 4.18, SD = .49) demonstrates the high impact of online food delivery service providers' customer services on overall customer satisfaction.

Hypothesis 2
The aim of the next hypothesis was to examine whether customer satisfaction was affected by the behaviour of delivery agents/staff of online food delivery services.
- $H_0 2$: There is no relation between delivery person's behaviour and customer satisfaction with online food delivery.
- $H_1 2$: There is a relation between delivery person's behaviour and customer satisfaction with online food delivery.

There was a statistically significant difference in *the impact of delivery person's behaviour*; t(514) = 1.231, p = .03, on customer satisfaction (Table 5).

Since the value of p is less than .05, it can be inferred that there is a statistically significant difference between the two groups, and so, the null hypothesis, $H_0 2$:*There is no relation between delivery person's behaviour and customer satisfaction with the online food delivery*, is rejected, and the alternate hypothesis, $H_1 2$:*There is a relation between delivery person's behaviour and customer satisfaction with the online food delivery*, is accepted.The mean value for

the group (M = 3.98, SD = .62) demonstrates the high impact of delivery persons' behaviour on overall customer satisfaction.

Hypothesis 3
The following hypothesis examined whether the security of online payment transactions affected customer satisfaction.
- $H_0 3$: The impact of secure online transactions on customer satisfaction with online food delivery services is not significant.
- $H_1 3$: The impact of secure online transactions on customer satisfaction with online food delivery services is significant.

There was no statistically significant difference in *the impact of secure online transactions*; t(514) = 11.197, p = .24, between secure online transactions and customer satisfaction (Table 6).

Since the value of p is less than .05, it can be inferred that there is a statistically significant difference between the two groups, and so, the null hypothesis, $H_0 3$:*There is no relation between secure online transactions and customer satisfaction with the online food delivery*, is rejected, and the alternate hypothesis, $H_1 3$:*There is a relation between secure online transactions and customer satisfaction with the online food delivery*, is accepted. The mean value for the group (M = 4.12, SD = .73) demonstrates the high impact of the perceived security of online transactions on customer satisfaction.

Hypothesis 4
The aim of testing the next hypothesis was to investigate if there were any differences in intention to use delivery service agents based on customer satisfaction.

Table 6: One-sample t-Test for the Impact of Secure Online Transactions on Customer Satisfaction

	Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
EVA	7.821	.02	11.197	513	.01	1.68190	1.42184	1.54186	2.17821
EVNA			9.316	514.185	.03	1.68190	1.42172	1.54186	2.18032

- **$H_0 4$:** There is no significant difference in the relationship between customer satisfaction and intention to use online food delivery among Zomato, Swiggy and Uber Eats customers.
- **$H_1 4$:** There is a significant difference in the relationship between customer satisfaction and intention to use online food delivery among Zomato, Swiggy and Uber Eats customers.

A one-way ANOVA was performed to compare the impact of customer satisfaction and intention to use among Zomato, Swiggy and Uber Eats customers. It was revealed that there was a statistically significant difference in mean score between at least two groups (F(2, 511) = [2.168], p = 0.01]) (Table 7).

Tukey's HSD Test for multiple comparisons found that the mean value of intention to use was significantly different between Zomato and Swiggy (p = 0.00, 95% C.I. = [-.31, 1.22]) and Zomato and Uber Eats groups (p = 0.01, 95% C.I. = [.82, -.14]). There was no significant difference in any of the other groups (Table 8).

Therefore, the null hypothesis, $H_0 4$:*There is no significant difference in the relationship between customer satisfaction and intention to use online food delivery among Zomato, Swiggy and Uber Eats customers*, is rejected, and the alternate hypothesis, $H_1 4$:*There is a significant difference in the relationship between customer satisfaction and intention to use online food delivery among Zomato, Swiggy and Uber Eats customers*, is accepted. For Zomato (M = 3.57, SD = .41), the mean value indicates a high intention to use this online delivery service agent due to customer satisfaction. In contrast, for Swiggy (M = 4.32, SD = .28), the mean value represents a comparatively higher intention to use this online delivery service agent due to customer satisfaction. Similarly, for Uber Eats (M = 4.08, SD = .34), the mean value represents a comparatively higher intention than Zomato, but lower than Swiggy, to use this online delivery service agent due to customer satisfaction.

DISCUSSION

Results indicate the high impact of customer service on overall customer satisfaction. In this research, customer services represent query handling at all transaction stages: before, during and after sales. These are unique findings since existing studies have mainly reported

Table 7: ANOVA Results for Customer Satisfaction and Intention to Order Food Online

	Sum of squares	df	Mean square	F	Sig.
Between Groups	6.282	2	4.264	2.168	0.01
Within Groups	1126.412	511	3.289		
Total	1036.618	513			

customer satisfaction regarding other variables. This study's findings differ from those of Zhongcao (2022), who reported a relationship between on-time food delivery and customer satisfaction. Similarly, the findings differ from those of Smith and Heriyati (2023), who found evidence of a direct impact of food quality on customer satisfaction. This study makes a unique contribution by finding evidence for the direct impact of customer service on customer satisfaction.

The study found evidence that delivery agent behaviour is essential to customer satisfaction. This is another unique contribution of this study. While many previous studies have examined the impact of factors such as performance expectancy and effort expectancy on customer satisfaction measured through their intention to buy (e.g., Ganou et al., 2022; Pachpute, 2023; Saad, 2021), this research directly investigated customer satisfaction through delivery agent performance. The issue of customer satisfaction through delivery agents has been a well-researched area in courier services (e.g., Muruganantham & Kumar, 2021; Mazlan, 2021; Kumar, 2018), but no research looks into this facet (customer satisfaction) concerning delivery agent performance, in the online food delivery industry. In this regard, this research makes a unique contribution.

The findings imply that users want peace of mind that their online transactions, mainly in the form of bank account/card details, are safe. Without this security, customers would not want to deal with a service online (Nagre & Sen, 2022). These are unique findings since the majority of other studies, although finding factors that affect customer satisfaction, are mainly based upon 'on-time delivery' or 'food quality' (e.g., Raman, 2018; Shankar et al., 2022). This study finds evidence that the

Table 8: ANOVA Tukey HSD Multiple Comparisons for Customer Satisfaction and Intention to Order Food Online

(I) Delivery agent	(J) Delivery agent	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Zomato	Swiggy	.81923	.41863	0.00	-.3102	1.2210
	Uber Eats	1.41892	.39170	0.01	-.8218	-.1428
Swiggy	Uber Eats	.21940	0.66210	0.22	0.5902	1.2632

security of online transactions plays a vital role in deciding customer satisfaction.

Customer satisfaction shapes behavioural intentions to try a product or service (Kumar & Neha, 2020). These findings imply a direct relationship between customer satisfaction and the futuristic intention to use online food delivery services. Swiggy is found to be number one in terms of people's choice to continue its use in the future, closely followed by Uber Eats. Zomato, however, needs to catch up. Findings make it evident that their customer service could be better somewhere, so a lower percentage of people have expressed their intention to use the service in the future. The findings imply that variety in payment options is tantamount to customer satisfaction, but at the same time, it also translates to ease of payment. In UTAUT, effort expectancy relates to the ease with which people can use technology, which motivates them to continue using it (technology).

This study finds evidence that factors such as security and variety in payment are organisational expectancy factors that, if present, lead to customer satisfaction and motivate users to continue using the technology in the future. The findings from this research also contribute to UTAUT by finding evidence for three additional factors, customer services, delivery personnel's behaviour and secure online transactions, which could impact people's intention to order food online. While performance expectancy, effort expectancy, facilitating conditions and social impact are individual factors, the three factors that this research proposes are organisational factors.

Limitations

While efforts were made to carry out comprehensive research, a few limitations still affected the process and the results. The survey was conducted on a sample of 514 users, which is small for a vast country like India. Since there were financial and time constraints, choosing a more significant sample was difficult. Future researchers could choose a comparatively bigger sample size to attain better generalisability of the results. The research only used quantitative techniques (surveys) for data collection. While it is a suitable technique when the sample size is big, it has limitations. A mixed methodology using quantitative and qualitative techniques could have been used for better

results. Respondent bias is another factor that could have affected the results.

Conclusion

This study investigated the main factors leading to customer satisfaction with online food delivery services in India. A survey was conducted on 514 participants. Findings from this study provide evidence that delivery customer services, delivery agent behaviour, and online payment security are the three most important factors that positively impact customer satisfaction.

From the results, it can be concluded that customers choose from the existing online food delivery services based on these three main factors, and their futuristic intention to order food online and from which service provider is guided mainly by these factors. No significant demographic variations were found in customer satisfaction, implying uniformity in customers' expectations of online food delivery service providers. These findings are important for organisations such as Zomato, Swiggy and Uber Eats, the three major players in this field. The findings can help them further improve their systems and processes to offer higher satisfaction to their customers.

The study contributes to the UTAUT framework by proposing three more categories: customer services, delivery personnel behaviour, and online payment security. These organisational factor categories add to the existing individual factors in the UTAUT. Together, these three factors were found to affect customer satisfaction, affecting the intention to order online food.

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