

Consumer Attitude of Environmental Challenges in Online Food Delivery Services: A Study in Chennai

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ABSTRACT

Online delivery services have become an important part of the digital economy due to factors like smartphone penetration, urbanisation and changing consumer lifestyle. The major food delivery platforms like Swiggy and Zomato provide convenience and a wide variety of food choices from the consumers' favourite restaurants by enhancing their experience and reshaping the food service landscape. The rapid growth of online food delivery services has intensified environmental challenges like plastic waste, high carbon emissions and food waste. Yet consumer awareness of these issues remains underexplored. This study addresses a critical gap by examining how informed consumers are about these impacts by assessing their attitude and willingness, which is essential for promoting sustainable practices in an industry projected to expand significantly. Primary data was collected from 133 respondents and analysed using percentage and weighted mean. In conclusion, the results showed that Swiggy is the most preferred OFD app. The respondents are aware of the environmental challenges and have a positive attitude towards reducing pollution. They are also willing to pay extra for the eco-friendly packaging. This gives OFD platforms and restaurants a solid base on which to invest in environmentally friendly packaging options without appreciably reducing consumer demand.

KEYWORDDS: Online Food Delivery services (OFD), Environmental Challenges, Awareness, Attitude, Willingness, Eco-friendly Packaging.

Introduction

Online delivery services have become an important part of the digital economy. The business has seen significant growth due to factors like smartphone penetration, urbanisation and changing consumer lifestyle. The major food delivery platforms like Swiggy and Zomato provide convenience and a wide variety of food choices from the consumers' favourite restaurants by enhancing their experience and reshaping the food service landscape.

Despite these benefits, major environmental issues have emerged as a result of a quick growth of online food delivery services that need careful consideration. The major environmental challenges are the use of single-use packing materials and non-biodegradable containers. These deliveries also result in higher carbon emissions, especially in metropolitan cities where the use of fuel-powered vehicles increases energy consumption and air pollution.

Review of Literature

Aakarsh Gupta (2023), attempted to assess multiple factors that affect the adoption of food delivery apps. The study examined the usage pattern of these apps on a weekly basis and identified the most preferred app out of the many apps customers use. A convenience sampling technique was used to recruit 241 respondents and data were collected via Google Forms. The study findings indicated that 58.51% of people preferred to order food at home rather than dine out, which usually happens a maximum of 3 times in a week. The study concluded that out of all the factors, the following, namely, taste of food, price, menu-item variety, speed of service, promptness of handling complaints, brand perception, promotional offers and recommendation from friends all have a significant impact on the adoption of Food Delivery Apps. Vinaik et al., (2019) examined customers' attitude and perception towards digital food app services, they said that a huge rise in digital technologies has given rise to the industry and Zomato was one of the most popular online food ordering services. The major reason for the customers getting attracted towards these apps was the special offers, easy payment method. Bhotvawala et al. (2016) studied the growth of food tech and compared the food aggregator services in India. The study compared food aggregators such as Swiggy, Zomato, FoodPanda and TinyOwl using a SWOT analysis and found that scalability, innovation and cash burn are the bottlenecks for early-stage food aggregator services.

Chang et al. (2021), investigated consumer psychology and behaviour from the perspective of information summary by using signal theory. The relationship among green product information asymmetry, excessive product packaging, green product psychological ownership

and green purchase behaviour was examined. The results revealed that green product packaging and green product psychological ownership completely mediated the relationship between green product information asymmetry and green purchase behaviour. The author suggested that enterprises should reduce excessive product packaging and strengthen consumers' green product psychological ownership. Hasan & Kulsum (2025) researched the topic of sustainability practices and consumer behaviour in food delivery services. The results of the case study revealed that the conservative spectrum or reluctance to adopt new sustainability practices, cost versus benefit and operational challenges are some of the issues that are noted as constraints to push sustainability. The results also revealed that sustainability efforts are positively associated with customer satisfaction, brand loyalty and competitive advantage.

Research Gap

The rapid growth of online food delivery services has intensified environmental challenges like plastic waste, high carbon emissions, and food waste. Yet consumer awareness of these issues remains underexplored. This study addresses a critical gap by examining how informed consumers are about these impacts by assessing their attitude and willingness, which is essential for promoting sustainable practices in an industry projected to expand significantly. Limited research exists on consumer awareness levels and understanding this awareness is vital for policies that align business practices with environmental goals.

Objectives of the study

1. To understand consumer usage patterns of online food delivery services.
2. To assess the level of awareness among consumers regarding the environmental impacts of online food delivery.
3. To determine the consumers' willingness and attitude to support environmentally friendly practices.

Research methodology

The population of this research includes customers who use OFD services. The 'Purposive Sampling Technique' was employed in this study, as respondents were selected if they had been with OFD Services for at least one year. Primary data was collected from 133 respondents. Data was collected using a structured questionnaire. The factors of the study were measured on a five-point Likert's scale ranging from strongly agree (5) to strongly disagree (1).

Table No.1 - Demographic Profile of the respondents

Socio-Demographic Factors	Classification	Frequency	Percentage
Age	20 years upto 30 years	73	54.9
	30 years upto 40 years	30	22.6
	40 years upto 50 years	23	17.3
	50 years upto 60 years	5	3.8
	60 years and above	2	1.5
Gender	Male	53	39.8
	Female	80	60.2
Educational Qualification	Up to HSC/Diploma	7	5.3
	UG	64	48.12
	PG	32	24.1
	Professional	17	12.8
	Others	13	9.8
Marital Status	Single	81	60.9
	Married	52	39.1
Monthly Family Income	Upto Rs.50,000	43	32.3
	Rs.50,001- Rs.1,00,000	37	27.8
	Rs.1,00,001 – Rs.1,50,000	24	18
	Rs.1,50,001 – Rs.2,00,000	14	10.5
	Rs.2,00,000 – More than Rs.2,00,000	15	11.3
	More than Rs.2,00,000	15	11.3
Occupation	Student	30	22.6
	Private Employee	51	38.4
	Government Employee	22	16.5
	Professional	10	7.5
	Business	12	9
	Homemaker	8	6

Typically, the majority of respondents are female (60.2%), undergraduate (48.12%), private employees (38.3%), who are single (60.9%), with a monthly income of less than Rs.50,000 (32.3%) and aged between 20 and 30 years.

Table No.2 – Preference of online food delivery apps

Online Food Delivery Applications	Preference Rank
Swiggy	1
Zomato	2
Others	3

From the above Table, it can be inferred that the most preferred online food delivery app is Swiggy followed by Zomato and other online food delivery apps like, Ola, Dominos and Eat Sure.

Table No.3 – Specific Demographic Profile of the respondents

Particulars		Percentage
How many times do you use online food delivery service in a month	1-2 times	36.1
	3-4 times	24.8
	5-6 times	21.8
	7-8 times	12.8
	9 times and above	4.5
How long have you been using online food delivery services	1 year upto 2 years	22.6
	2 years upto 3years	26.9
	3 years upto 4 years	21.8
	4 years and above	29.4

From the above Table, it can be inferred that most of the respondents use OFD services 1-2 times a month (36.1%) and they have been using OFD services for more than four years (29.4%).

Table No.4 – Consumer Awareness About Environmental Challenges in OFD Services

Particulars		Percentage
Are you aware that online food delivery contributes to environmental issues?	Yes	66.2
	No	33.8
Do you think online food delivery packaging waste is a serious problem for the environment?	Yes	66.9
	No	33.1
Are you aware of eco-friendly initiatives by food delivery platforms like Swiggy or Zomato?	Yes	66.2
	No	33.8
Have you noticed options such as “no cutlery” or eco-friendly packaging while ordering?	Yes	60.2
	No	39.8

Table 4, shows that consumers were aware that OFD contributes to environmental issues, particularly through increased packaging waste, carbon emissions from delivery vehicles, and higher energy use across the supply chain (66.2%). They were also informed that packaging waste is a serious problem, because large volumes of single-use plastics and other disposable materials add up, worsening plastic pollution (66.9%). Platforms like Swiggy and Zomato have introduced eco-friendly initiatives, including campaigns to cut plastic use, exploring greener packaging alternatives, and experimenting with batched or lower-emission deliveries (66.2%). In addition, many users have noticed options such as “no cutlery” or prompts to choose minimal or eco-friendly packaging while ordering, which are designed to reduce unnecessary plastic and cutlery waste for each delivery (60.2%).

Table No. 5 - Consumer perception with respect to the environmental impacts of OFD Services

S.No	Particulars	Mean	Standard Deviation
1	Online food delivery leads to plastic packaging waste.	4.04	.773
2	Online food delivery contributes to air pollution from delivery vehicles.	3.86	.824
3	Online food delivery results in increased food	3.79	.862

	waste.		
4	Online food delivery causes excess use of paper and containers.	4.02	.821
5	Online food delivery increases the use of single-use cutlery and straws.	3.99	.774

Table 5 depicts that respondents perceive that OFD leads to plastic waste packaging (4.04) and also think that it contributes to air pollution from delivery vehicles (3.86). Furthermore, they believe that OFD results in increased food waste (3.79), excess use of paper and plastic containers (4.02), and increased use of single-use cutlery and straws (3.99). Zomato was the first to initiate a ‘no cutlery’ default option in 2021. This achieved 74 per cent of opt-out rates and reduced the plastic waste by 5000 kgs per day across millions of orders. (Nusra 2021)

Table No. 6 – Consumer willingness and attitude to support environmentally friendly practices.

S.No	Particulars	Mean	Standard Deviation
1	I prefer ordering from restaurants that use sustainable packaging.	4.17	.866
2	I think it is the retailer’s responsibility	3.98	.896
3	Reducing plastic packaging should be a priority in food delivery services.	4.11	.765
4	I feel guilty when I receive excessive packaging with my order.	3.62	1.020
5	I usually avoid ordering items with excessive packaging.	3.64	.980
6	I am willing to pay an extra on eco-friendly packaging	3.65	1.102

The Table shows that respondents prefer ordering from restaurants with sustainable packaging (4.17). They also feel that it is the retailer's responsibility to use eco-friendly packaging (3.98) and feel that reducing plastic packaging should be the priority in food delivery services (4.11). They also agree that they feel guilty when there is excessive packaging (3.62) and avoid ordering items with excessive packaging (3.64). They also agree that they are ready to pay extra for eco-friendly packaging (3.65). The level of food waste in online food ordering can be reduced by optimising the catering, taking out the food supply system and promoting lifestyle transformation among residents (Jia L 2022)

Limitations of the Study

1. The study is geographically limited to the city of Chennai. Therefore, the findings may not be generalised to rural areas and other regions.
2. The study is subject to the limitations of the questionnaire method of data collection.
3. This study limits the observations, as it reached consumers at one point in time and does not capture behavioural changes over time.

Implications of the Study

The findings offer valuable insights to the online food delivery platforms by incorporating eco labels, green labels and carbon footprint indicators to encourage responsible consumer behaviour. The restaurants can adopt environmentally friendly packaging solutions to reduce waste generation. Restaurants and OFD platforms should understand that sustainability initiatives will improve brand reputation and also, they should educate consumers about sustainable choices through awareness campaigns and incentives.

The findings imply to consumers that excessive plastic usage and food waste are serious issues that require immediate attention. This awareness will shift consumer behaviour by reducing the frequency of ordering through OFD apps, preferring sustainable service providers and paying extra for eco-friendly packaging.

The policymakers should draw regulations and also promote sustainable and eco-friendly delivery practices.

Scope for Future Study

Future studies can expand the geographical scope beyond Chennai and include Tier 2 metropolitan cities and rural areas to enable comparative analysis. The researchers can also adopt a longitudinal approach to examine how consumer awareness and attitude evolve with an increase in environmental campaigns and regulations.

Conclusion

The study provides meaningful insights into consumer awareness of environmental challenges and online food delivery services. This enables OFD platforms and restaurants to adopt environmentally friendly packaging options without reducing consumer demand.

Bibliography:

- [1.] Chang, T. W., Chen, Y. S., Yeh, Y. L., & Li, H. X. (2021). Sustainable consumption models for customers: investigating the significant antecedents of green purchase behavior from the perspective of information asymmetry. *Journal of Environmental Planning and Management*, 64(9), 1668–1688. <https://doi.org/10.1080/09640568.2020.1837087>
- [2.] Vinaik, A., Goel, R., Sahai, S., & Garg, V. (2019). The study of interest of consumers in mobile food ordering apps. *International Journal of Recent Technology and Engineering*, 8(1), 3424-3429.
- [3.] Aakarsh Gupta, A. G. (2023). Factors Affecting Adoption of Food Delivery Apps, *Journal of Advanced Research*. 7(10), 587-599, ISSN: 2320-5407, DOI:10.21474/IJAR01/ 9871.
- [4.] Kaur, N., & Singh, H. (2021). Sustainability: Study Perspective to plastic consumption by online food delivery services. *Turkish Online Journal of Qualitative Inquiry*, 12(10).
- [5.] Hasan, M. I. M., & Kulsum, M. U. (2025). Sustainability practices and consumer behaviour in food delivery services: a case study.
- [6.] Jia L, Zhang Y, Qiao G. Consumer-Related Antecedents of Waste Behavior in Online Food Ordering: A Study among Young Adults in China. *Foods*. 2022 Oct 5;11(19):3098. doi: 10.3390/foods11193098. PMID: 36230177; PMCID: PMC9563288.
- [7.] <https://www.restaurantindia.in/author/nusra>