

# **Covid-19 and Food delivery: A Study of the Factors Affecting Indian Consumers' Use of Food Delivery Apps During the Covid-19 Pandemic**

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**Abstract:** With the Covid-19 pandemic disrupting the standards and requirements for service sectors around the globe, there is an urgent need amongst firms to understand consumer behaviour and psychology in order to best adapt practices. This is particularly pressing for food delivery firms, who at present rely on specific advertising and offers to maximise consumer interaction and demand. However, understanding consumer psychology will allow for structural and business changes that can greatly influence demand. This study identified and analysed the factors affecting consumer's use of food delivery apps in India - Swiggy and Zomato - through an in-depth case study analysis. This mixed method research approach made use of an online survey which asked respondents for various details on their use of Swiggy and Zomato. A quantitative analysis was conducted on the number of times respondents used Swiggy and Zomato and their ratings for the importance of factors affecting their use of the same. This was further explained through qualitative comments. A two sample t-test indicated that the mean difference between the number of times Swiggy was used over Zomato was statistically significant. Furthermore, a one way ANOVA displayed that all three factors (importance of hygiene measures, importance of the safety of delivery drivers, importance of the selection of restaurants) were statistically significant, with hygiene measures being the absolute priority for respondents. With the understanding that in the pandemic situation consumers valued driver safety highly, firms such as Swiggy and Zomato could place greater emphasis on the manner in which they present and treat delivery drivers. Furthermore, greater research into consumer psychology as presented in this research could offer firms in various industries opportunities of greater profitability whilst keeping consumers content.

**Keywords:** Food Delivery, COVID-19, Swiggy, Zomato, Consumer Psychology, Online Food Apps

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## **I. INTRODUCTION**

When the Indian Prime Minister Narendra Modi announced the first of a series of nationwide lockdowns in India, service sector businesses all around the country were left with a seemingly insurmountable problem. Being a country having 31.45 % of the population working in the service sector, which amounts to 55.39 % of India's Gross Value Added ( Services Sector in India IBEF, 2020), the announcement of a large-scale lockdown was seen as a heavy blow on demand to all hotel and restaurant, transport, real estate, construction, and various other service sector industries (Dhasmana 2021). This lockdown required citizens to stay confined to their homes and avoid use of any external unessential service. A growing market in the vital service sector of India is that of online food delivery, which has reached a value of \$4.3 Billion as of 2020 ( India Online Food Delivery Market imarc, 2020). Amongst this massive sector of the economy was the market for online food delivery.

In India the online food market runs as a defined duopoly (Ananya B, 2019). The two players being Swiggy and Zomato. Swiggy, founded in 2014, expanded greatly over the years and reported 115% increase in revenue, 85% business growth, the addition of 100,00- restaurants to its system and expansion into 405 new cities for the fiscal year 2019-2020 (Peerzada A, 2021). Swiggy's direct market rival Zomato saw a 100% increase in revenue for the fiscal year 2019-2020 (Peerzada A, 2021). However, as Covid-19 lockdown threats loomed, these organisations' significant growth rates faced threat. As Ryan Young (2021) mentions, food delivery services in the United States such as Instacart and UberEats faced significant effects from the initial stages of the pandemic, labelled as "Covid Shock". This fear proved to be justified as Swiggy reported a 61% increase in losses as of March 31st 2021 (Swiggy's losses increased by over 60% in FY 2020 Financial Times, 2021).

The aim of this research is to examine the factors affecting the demand for food delivery firms Swiggy and Zomato in India in relation to the challenges faced by the COVID-19 pandemic. In order to control the spread of the virus, residents of India faced lockdowns measures from the end of March to the end of May 2020. During the various stages of lockdown there were constantly varying rules and measures in different sections of cities, but despite the complexity of the situation food delivery firms such as Swiggy were constantly adjusting and advertising, even exploring opportunities to expand. Understanding of the adaptability that firms can have, especially during times such as the midst of a pandemic, is beneficial as this information can be applied to many different contexts and gives us a better understanding of how the businesses we support function.

## II. METHOD

### A. Research Aim and Approach

To understand and analyse the various factors affecting Indian consumers' use of Swiggy and Zomato during the lockdown period, and to understand the economic and structural actions that could be taken by food delivery firms (namely Swiggy) in India in response to the challenges faced by the COVID-19 pandemic.

The research aim of this study was to examine the Impact of the COVID-19 pandemic on the online food delivery platform industry, through in-depth case study analyses of Swiggy and Zomato. A case study analysis, according to Yin (2009), involves an investigation of a phenomenon within a specific real-life context to identify underlying factors and patterns that have contributed to the situation (Yin, 2009, p. 13). It also allows for the gathering of data from multiple sources (Yin, 2009).

For a start, under the quantitative approach, factors influencing Indian residents (who were located in India from March to May 2021) respondents' use of Swiggy and Zomato during the Covid-19 pandemic lockdown in India from March to May through a mixed method research approach. An online survey was formulated to obtain various details about the respondents' usage of online delivery apps during the pandemic lockdown period which lasted from 25th of March to the 31st of May 2020. The questionnaire asked respondents how many times per month on average they ordered from either Swiggy or Zomato. This information was necessary as aided in demonstrating how much of the sample population made use of online food delivery platforms, as well as identifying differences between the extent of use of Swiggy and Zomato, which could be compared to further factors while evaluating. First, a quantitative analysis of the difference in the mean number of times respondents ordered from either Swiggy or Zomato was evaluated.

**Null Hypothesis:** There is no difference between the mean number of times Indian respondents order food online from Swiggy and Zomato.

**Alternative Hypothesis:** There is a difference between the mean number of times Indian respondents order food online from Swiggy and Zomato.

Next, a quantitative analysis of Indian respondents' perceptions of the factors that influence their decision of ordering food online was compared and evaluated in terms of their importance. The factors are: trust in the online food delivery apps' adoption of safety and hygiene measures for customers during the pandemic, perceptions of the online food delivery apps' treatment of their delivery drivers customers during the pandemic, and the variety and selection of restaurants on offer. These factors were chosen as they appealed to varying aspects of the consumer's rationale, and as Saad (2020) mentions, direct and indirect factors which are important to consumers in the online food delivery business include the number of restaurants available, delivery drivers, and service quality as a firm. As such, the following hypotheses were tested:

**Null Hypothesis:** There are no differences in the mean ratings of the importance of the aforementioned factors that influence Indian respondents' decision of ordering the delivery of food online.

**Alternative Hypothesis:** There are differences in the mean ratings of the importance of the aforementioned factors that influence Indian respondents' decision of ordering the delivery of food online.

Respondents were asked to justify their ratings and choices for each of the factors through an open answer question. This would allow for further evaluation on specific factors and the cause behind their mean ratings, as well as connections to be drawn between the results and the actions of the firms.

### B. Data Collection

The aforementioned survey was incorporated into a Google form and sent out to Indian respondents via Whatsapp and Instagram. The form was only shared with contacts that had spent the lockdown period of the pandemic in India, to ensure respondents were viable. A total of 133 responses were recorded.

**C. Data Analysis**

Descriptive statistics were used to present the mean differences between the number of times Indian respondents order from Swiggy and Zomato and the mean difference between the ratings of the importance of the factors influencing Indian respondents' decision of ordering the delivery of food online. A 2 sample t-test was used to determine the statistical significance of the mean difference between the number of times respondents ordered from each respective service. A one-way ANOVA was used to determine the statistical significance of the mean difference between the ratings of the importance of factors that influence Indian respondents' decision of ordering the delivery of food online.

**III. RESULTS AND DISCUSSION**

The following section presents the analysis of the results of the survey. Specifically, the average number of times food was ordered per month from Swiggy and Zomato was compared with one another. Furthermore, the mean ratings of the importance of factors impacting the consumers' decision to order food online (regardless of whether it was from Swiggy or Zomato) were also evaluated. Finally, the respondents' qualitative responses were integrated with the quantitative findings to provide further insight into their ratings.

**Number of Times Food was Ordered Per Month from Swiggy and Zomato**

As shown in Table 1, the average number of times food was ordered from Swiggy per month ( $M = 4.90, SD = 9.57$ ) was greater than that of Zomato by as much as by 2.73 times ( $M = 2.17, SD = 8.20$ ).

**Table 1: Descriptive Statistics- Average Number of Times Food was Ordered Per Month from Swiggy and Zomato**

	<i>Average Number of Times Swiggy Used Per Month</i>	<i>average number of times Zomato used per month</i>
Mean	4.90	Mean
Standard Error	0.83	Standard Error
Median	2	Median
Mode	0	Mode
Standard Deviation	9.57	Standard Deviation
Count	133	Count

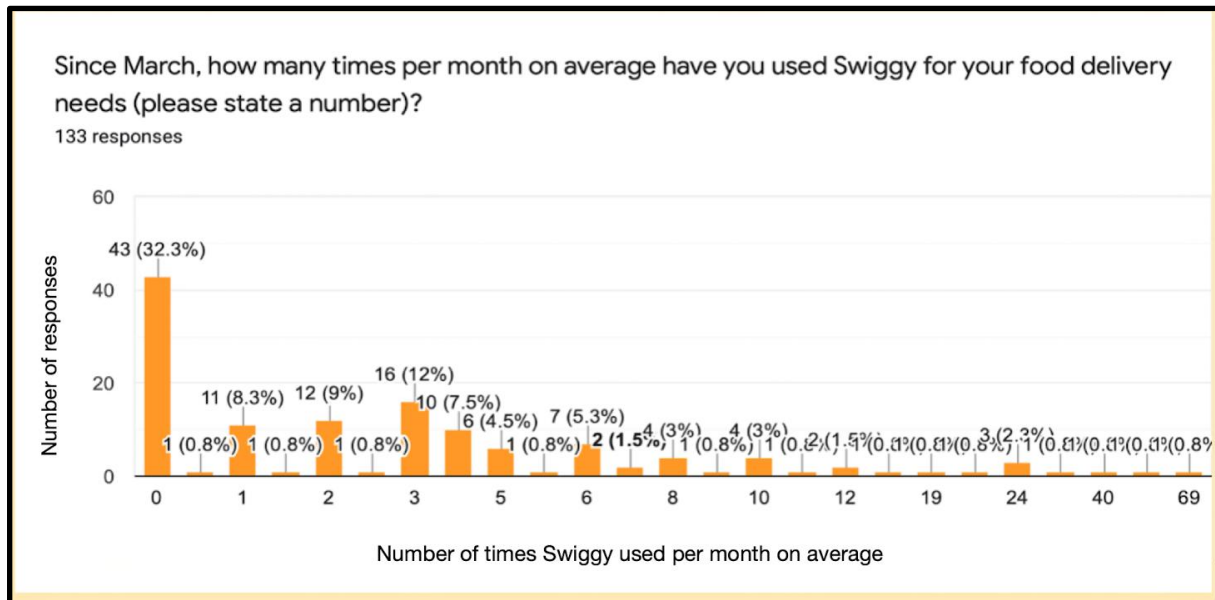
Next, a two-sample t-test was run on the data to determine whether the mean difference between the number of times Swiggy and Zomato were used per month is statistically significant. Table 2 indicates that the mean difference in the values is statistically significant,  $t(2.47) = 2.48$ , greater than the  $t$  critical value of 1.97 (two-tailed),  $p = .014$  (two-tailed), less than .05.

**Table 2: Two Sample t-test on Average Number of Times Food was Ordered Per Month from Swiggy and Zomato**

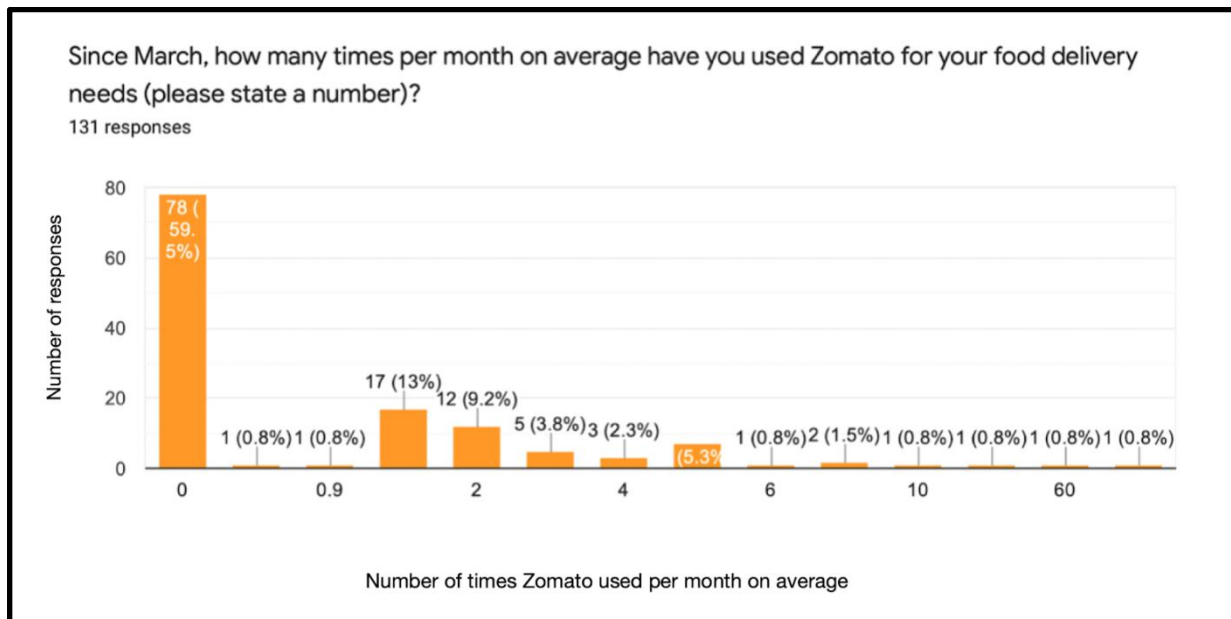
	<i>Average Number of Times Swiggy Used Per Month</i>	<i>Average Number of Times Zomato Used Per Month</i>
Mean	4.90	2.17
Variance	91.7	67.2
Observations	133	131
Hypothesized Mean Difference	0	
df	257	
t Stat	2.48	
P(T<=t) one-tail	0.006	

t Critical one-tail	1.65	
P(T<=t) two-tail	0.014	
t Critical two-tail	1.97	

The underlying reason for this statistically significant difference between the respondents showed a statistically significant preference for Swiggy over Zomato could be seen by examining the differences in the proportions of the respondents across the various ratings in detail (see Figures 1 and 2).



**Figure 1. Graph showing number of times per month ordered from Swiggy between March 25th and May 31st 2020**



**Figure 2. Graph showing number of times per month ordered from Zomato between March 25th and May 31st 2020**

By looking at the graphs, one can see why the mean differences between the number of times per month the respondents ordered from Swiggy and Zomato was statistically significant. For example, the number of respondents who never used Zomato and put a value of “0” (78) was almost double of the number of

respondents who never used Swiggy and put a value of “0” (43). Out of the 133 responses for Swiggy 89 respondents entered a value of “1” or more for the number of times per month ordered from Swiggy, as compared to Zomato, where out of the 133 responses 51 entered a value of “1” or more. Furthermore, the number of respondents who ordered from Swiggy more than twice (77) was more than double the number of respondents who did the same with Zomato ( 34) .

The respondent’s clear preference towards ordering food online from Swiggy can be attributed towards the ease of use of the app. The various features, aesthetic appeal, and functionality of an application is useful in gathering a user base, as Kimes (2011) states that control and ease of use in app’s play a significant role in users’ demand. Furthermore, B.Eswaran (2020) states that a significant relationship can be found between a food delivery app and the number of times it was used. Rohit Chadda (2020) mentions that Swiggy receives higher daily orders than Zomato- roughly 1.5 million as compared to Zomato’s 1.2 million- due to expansion efforts with Swiggy Stores, a positive relationship with the National Restaurant Association of India, and striking partnerships with hyper-local stores in tier II and III Indian cities. The NRAI, accusing both Swiggy and Zomato of “unsustainable discounting”, launched a campaign to beckon users to stop using the aggregator’s applications. Swiggy appeared to have conducted discussions and resolved the issue, while Zomato chose to appeal directly to restaurants instead, a move resulting in no real impact (Chadda 2020).

**Ratings of the Importance of Factors Impacting Decision to Order Food Online**

In terms of the comparison of the factors, based on their importance in influencing respondents’ decisions to order food online (whether from Swiggy or Zomato), we see that the mean rating for the importance of safety and the adoption of hygiene methods ( $M = 4.14, SD = 1.05$ ) proved to be the highest. Nonetheless, it is only 0.2 and 0.32 greater than the mean rating of the selection of restaurants ( $M = 3.94, SD = 1.10$ ) and the delivery driver treatment ( $M = 3.82, SD = 1.10$ ), respectively (see Table 3).

**Table 3: Rating the Importance of Factors Impacting Decision to Order Food Online**

	<i>Imp of Safety and Adoption of Hygiene Methods</i>	<i>Imp of Delivery Driver Treatment</i>	<i>Imp of Selection of Restaurants</i>
Mean	4.14	3.82	3.94
Standard Error	0.091	0.095	0.095
Median	4	4	4
Mode	5	4	4
Standard Deviation	1.05	1.10	1.10
Range	4	4	4
Count	133	133	133

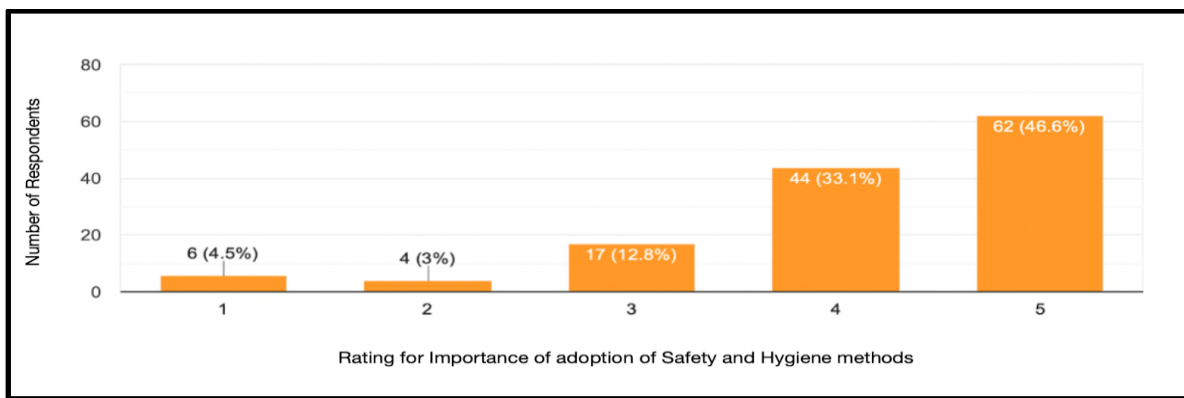
There are two chief observations to be made. For a start, it is evident that COVID-19 has thrust the concern over hygiene to the highest factor by a huge margin, vis-a-vis the other factors, with a mean value of 4.14 out of 5. Second, and just as importantly, all of these factors have been rated very highly, ranging from 3.82 to 4.14 out of 5. It is worth to note that the factors of importance of delivery driver treatment and the selection of restaurants have a mode of 4, indicating that despite a slight preference to the importance of the selection of restaurants both factors are very similarly rated.

To determine the statistical significance of the mean differences between the respondents’ ratings of the importance of factors, a one-way ANOVA test was run. It shows that the differences between the mean ratings of the three factors affecting the decision to order food online are statistically significant:  $F(2,396) = 3.021$  (higher than the  $F$  critical value of 3.0185) ,  $p = .0499$  (see Table 4).

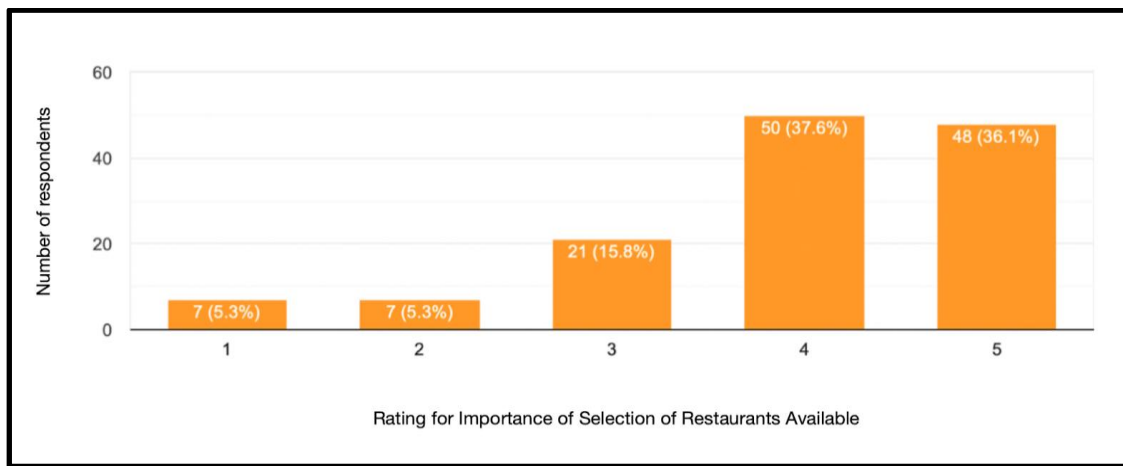
**Table 4: One way ANOVA for rating of importance of factors impacting decision to order food online**

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	7.10	2	3.55	3.021	0.0499	3.0185
Within Groups	465	396	1.18			
Total	473	398				

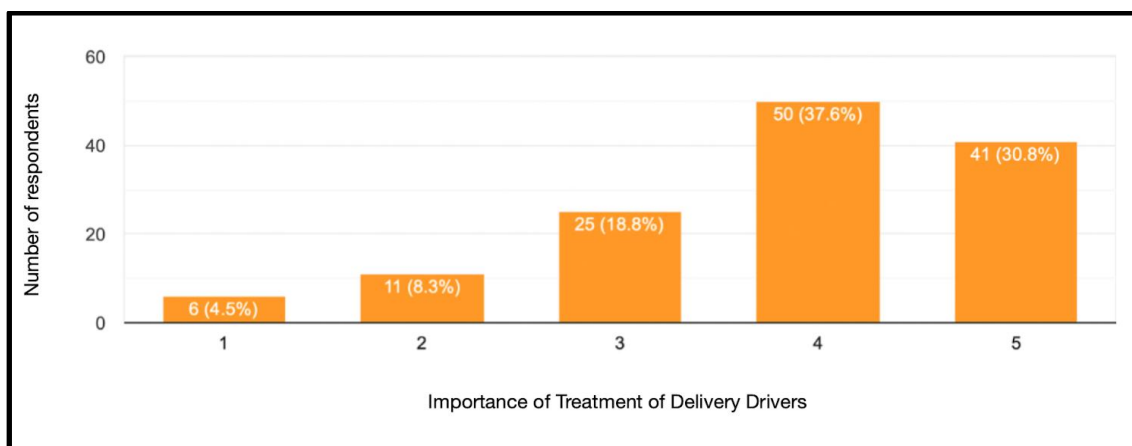
The distribution of the proportions of respondents across the different means can be further examined by studying the respondents' values in detail (see Figures 4–6).



**Figure 4. Graph showing ratings for importance of safety and adoption of hygiene measures**



**Figure 5. Graph showing ratings for importance of selection of restaurants available**



**Figure 6. Graph showing mean ratings for importance of treatment of delivery drivers**

By looking at these graphs, one can see that the rating of “4” was most common amongst all factors influencing the respondents decision to order food online. In fact, the number of respondents who gave the selection of restaurants a “4” (50) was the same as the number of respondents who gave delivery driver treatment a “4” (50). What gave the hygiene factor a far bigger lift in the mean rating than the other factors is that almost half of all respondents (62) gave this a rating of “5”, compared to 48 respondents for restaurants and 41 for treatment of delivery drivers. Therefore, the bar graph ratings regarding the hygiene factor also reaffirms the significance of the hygiene factor as being the most important factor for the respondents in influencing their decision to order online. Furthermore, this implication is also supported by the comments of the respondents:

*“If the food is handled carefully, then it can prevent many more people from getting COVID.”*

*“The handling of food using masks and gloves is most important, as that’s when people touch the food the most. And using gloves and masks helps it to be the most hygienic for us when we reach the order.”*

*“Maintaining safety measures is the single most important thing and should be the priority of every food delivery service during these times, as people are entrusting their health and well-being in the hands of these services.”*

Mehroliya S et al. (2020) concludes that the high-perceived threat due to Covid-19 infections creates negative purchase intentions towards online food delivery services. Furthermore, despite the low rates of infection caused by these delivery services, due to a lack of awareness and uncertainty, the perceived threat of infection remains high (Merholia S, 2020). This can further explain why the respondents gave such importance to hygiene factor.

Perhaps, a surprising finding of this research study is the extent of the importance the respondents placed on the treatment of delivery drivers. Of the 133 respondents, 91 rated the importance of delivery driver treatment a “4” or higher. This is supported further by respondents’ qualitative comments.

*“Drivers must be safe while delivering the food. They should be paid fairly for delivering food during a pandemic.”*

*“Safety of the deliverers is of top priority, as it keeps both them and the customers safe. Handling of food using proper hygienic equipment is also important.”*

#### IV. CONCLUSION

The research aim of this paper was to understand and analyse the various factors affecting Indian consumers' use of Swiggy and Zomato during the lockdown period, and to understand the economic and structural actions taken by food delivery firms (namely Swiggy) in India in response to the challenges faced by the COVID-19 pandemic.

Looking at the market control and popularity of the two duopolistic firms in the online food delivery market in India, it was found that there was a statistically significant preference for the use of Swiggy over Zomato, as the mean difference analysed through a 2-sample t-test found that  $t(2.47) = 2.48$ , greater than the  $t$  critical value of 1.97 (two-tailed), and  $p = .013$  (two-tailed), less than .05. Therefore, we can fully reject the null

hypothesis that There are no differences in the mean ratings of the importance of the aforementioned factors that influence Indian respondents' decision of ordering the delivery of food online.

Next, looking at Indian respondents' perception of the importance of different factors which influence the decision to order food online, it was found that the factor of hygiene and safety methods was most important to respondents and earned the highest mean rating of 4.14 out of 5. Furthermore, it was found that all three factors ( Safety and hygiene methods, Delivery driver treatment, Selection of restaurants) were rated highly, with mean ratings ranging from 3.82 to 4.14 out of 5. An ANOVA test was run to determine the statistical significance between the mean ratings of all three factors. The difference between the mean ratings was statistically significant, with  $F(2,396) = 3.021$  (higher than the  $F$  critical value of 3.0185) ,  $p = .0499$ . We can therefore fully reject the null hypothesis that there are no differences in the mean ratings of the importance of the aforementioned factors that influence Indian respondents' decision of ordering the delivery of food online. The significance of the adoption of hygiene and safety methods by online delivery firms can be accredited to the high perceived threat of Covid-19 and infections (Merholia S, 2020). The 3 factors being rated highly indicate that the demand for Swiggy and Zomato from the 25th of March through to the 31st of May 2021 were dependent not just on a single factor, but multiple that held high significance.

The third and final aspect of this research study uses the information obtained through the survey and second aspect to provide reasonable innovative solutions to how online food delivery firms could possibly increase revenue and demand while still following health and safety precautions. This will advise changes and possible measures that can be implemented during the ongoing pandemic or for future situations as such.

The results of the study, particularly concerning the importance of the safety of food delivery drivers to customers of food delivery aggregators, reveal that there is an area for improvement and enterprise in the food delivery process, especially in the context of the Indian food delivery market during the pandemic. Food delivery drivers play an immensely important role in the modern delivery supply chain (Penske Logistics, 2021), especially considering the safety training required under the Food Safety and Standards Authority of India. Increasing visibility on the fair and enhanced treatment of delivery drivers could allow for greater interest and demand in delivery services. This transparency suggested could come through various forms, including infographics displaying the security measures taken by the firm to ensure the safety of drivers, relevant bio-data of drivers to increase personalisation, and a structured, efficient system of displaying that drivers are taken care of during deliveries after uncontrollable events such as weather or motor accidents. Furthermore, transparency in tracking driver's temperatures could play a role in improving consumer satisfaction, as this action would address the health and hygiene, and driver safety concerns of the consumer.

## REFERENCES

- [1]. Abrar, P. (2021, July 20). Swiggy valuation tops \$5.5 bn after raising \$1.25 bn from Softbank, Prosus. *Business Standard*. [https://www.business-standard.com/article/companies/swiggy-valuation-tops-5-5-bn-after-raising-1-25-bn-from-softbank-prosus-121072000561\\_1.html](https://www.business-standard.com/article/companies/swiggy-valuation-tops-5-5-bn-after-raising-1-25-bn-from-softbank-prosus-121072000561_1.html)
- [2]. Bhattacharya, A. (2019, July 18). *Zomato or Swiggy: Who is leading in the food delivery app race (and where)?*. Scroll. <https://scroll.in/article/930862/in-charts-who-leads-the-race-between-zomato-and-swiggy-and-where>
- [3]. Chadda, R. (2020, May 21). *Swiggy vs Zomato: Battle India's Biggest food aggregator*. DNA India. <https://www.dnaindia.com/analysis/report-swiggy-vs-zomato-battle-of-india-s-biggest-food-aggregator-2820924>
- [4]. Dhasmana, C. (2021, August 4). Lockdown effect: Service activities decline for 3rd straight month in July. *Business Standard*. [https://www.business-standard.com/article/economy-policy/lockdown-effect-service-activities-decline-for-3rd-straight-month-in-july-121080400404\\_1.html](https://www.business-standard.com/article/economy-policy/lockdown-effect-service-activities-decline-for-3rd-straight-month-in-july-121080400404_1.html)
- [5]. Eswaran, B., Bhuvanewari, V., Sivasankari, P., & Mangalalakshmi, B. (2020). Online Food Orders: Customers' Preference With Reference to North Chennai. *Journal of Critical Reviews*, 7(6), 23-26.
- [6]. <http://dx.doi.org/10.31838/jcr.07.06.06>
- [7]. imarc. (n.d). *India Online Food Delivery Market: Industry Trends, Share, Size, Growth, Opportunity and Forecast 2021-2026*. <https://www.imarcgroup.com/india-online-food-delivery-market>
- [8]. India Brand Equity Foundation. (2021, September 3). *Services Sector in India*. <https://www.ibef.org/industry/services.aspx>
- [9]. Kimes, S. E. (2011). consumer perceptions of online food ordering. *Cornell Hospitality Reports*, 11(10), 6-15. Retrieved September 6, 2020, from <https://ecommons.cornell.edu/handle/1813/71072>
- [10]. Mehrolia, S., Alagarsamy, S., & Solaikutty, V. M. (2020). Customers response to online food delivery services during COVID-19 outbreak using binary logistic regression. *International Journal of Consumer Studies*, 45(3), 396-408. <https://doi.org/10.1111/ijcs.12630>
- [11]. Penske Logistics. (n.d.). The Changing Role of Delivery Drivers. <https://www.penskelogistics.com/industries/food-and-beverage/changing-role-of-drivers>



- [12]. Saad, A. T. (2020). Factors affecting online food delivery service in Bangladesh: an empirical study. *British Food Journal*, 123(2), 535-550.
- [13]. 10.1108/BFJ-05-2020-0449
- [14]. Yin, R.K. (2009). Case study research: Design and methods (4th Ed.). Thousand Oaks, CA: Sage.
- [15]. Young, R., Kim, H., & Aleksandrov, E. (2021, January 19). *The Impact of Covid-19 on U.S. Food Delivery Services*. towards data science. <https://towardsdatascience.com/the-impact-of-covid-19-on-food-delivery-services-in-the-u-s-47eae04655c8>

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