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A study of consumer behaviour towards food ordering through mobile apps

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ABSTRACT

Smartphone technology has rehabilitated everything from taxi reservation to food ordering. People, especially the millennial generation, prefer to use high-end mobile apps ordering food from their preferred restaurant. Food is just a tap away, thanks to mobile apps. Many factors have influenced and impacted the reasons for online food ordering service and to name a few, most essentially the convenience factor, loyalty programs, social media and digital menu(customization). With on-demand popular food delivery apps like Swiggy, Food Panda, Zomato, Ubereats, etc., and people can have food delivered at their doorstep without conceding on the quality of food and their hectic schedule. This paper tries to understand the influence of demography of the people espousing to this technology. The impact of demographic factors on online food ordering behavior can be understood in this paper. The study also attempts to understand the intention of the customer to use such apps.

Keywords— Online food order, Food delivery, Smartphone, Mobile apps, Demographics

1. INTRODUCTION

The food ordering and delivery companies are taking advantage of the opportunity to upsurge their “evolving-faster-than-ever” customer base. Rapidly swelling Internet Infiltration, soaring smartphone users, palate appealing food offerings combined with expediency linked with ordering food online is driving the Food tech Market in India. The food delivery business in India is on the roll, with research portal Statista envisaging that returns in this segment will post a CAGR of 16.7 in the next few years, ensuing in a market volume of \$5.7 billion by 2022(Statista Portal).

College students, working couples and office goers are the crucial target audience of food tech companies. The market for online food delivery is mainly driven by growing disposable revenue. Varying demographics, increasing infiltration of internet and smartphones, favourable lifestyle changes, young population, consumption levels, a greater share of women in the workforce, aggressive marketing strategies adopted by food start-ups and the convenience of ordering is increasing significantly which led to the growth of the market. A few challenges pop up in the form of volatile demand patterns, uncontrollable environmental factors (traffic, weather and changing demand on a daily basis), high delivery cost, highly concentrated peaks in ordering during meal-times, limited delivery times and kitchen operations, etc.

Certain features for making successful online food delivery market are generating a code referral system, easy and user-friendly dashboard, social media integration, customer integration with push notification and cross-platform compatibility, etc. The upswing of digital technology is reformatting the market. Consumers habituated to shopping online through apps or websites, with maximum transparency and convenience, gradually expect the same experience when it comes to ordering food. In upcoming years, in India, food in 3D images or 360-degree view will be on websites, which will outline more meticulous menu information such as ingredients and portion size, etc. Apps like Kabaq are a game-changer in the future of food ordering with AR app that enables users to look at virtual 3D food, be it in restaurants or when ordering online. This augmented reality food ordering again excites young consumers who view food as an experience rather than just a means to satisfy hunger.

To discuss this topic, pertinent literature, particularly in relation to the food ordering through mobile apps and the demographic factors influencing it have been described below on the basis of survey and its results, followed by answers and inferences.

2. LITERATURE REVIEW

In the internet era, demographics play a very crucial role in consumer behaviours, specifically to understand the intention to use food apps. Preetha and Iswarya (2019) conducted research to analyze user convenience towards food online order and delivery application, considering demographics as a part of their study. Through their study, it was found out the customers who were a part of the research are not inclined by the demographic variables like age, occupation and marital status towards their intension to order in FOOD app.

Karan Kashyap has analyzed through research that online food ordering services are quite popular in Tier 1 cities. Most of the urban customers prefer eating in, as compared to going out to a restaurant when there are issues of, traveling, traffic congestions and waiting. This segment has therefore witnessed a growth of almost a hundred percent in the past years.

Serhat Murat Alagoz and Haluk Hekimoglu(2012) in their study indicate that age and gender do have an impact on online food ordering as people in the age range of 20 to 30 years tend to order online food frequently and working females also prefer ordering online food regularly.

Sheryl E. Kimes (2011) conducted a survey amongst 470 US-based consumers to find out “Customer Perceptions on Food ordering”. Her study clearly specifies that younger consumers were more likely to have used electronic ordering than older respondents. For example, 60 percent of respondents between 18 and 34 years old have ordered online, as opposed to 35 percent of people aged 35 or over. Her study also indicates that the survey’s demographic questions found a moderately even split by gender (with slightly more women, at 51.3%). The age distribution was fairly representative of the U.S. population (18-24, 12.6%; 25-34, 18.3%; 35-49, 19.6%; 50 – 64, 31.1%; 65+, 18.5%).

To understand how prevalent the use of multi-restaurant delivery websites/apps is, as well as their relative popularity, the Zion and Zion research team surveyed 2,928 U.S. consumers ages 18+. Their study indicated that the younger a person is, the more likely they are to order restaurant delivery using one of these services. 63% of people 18 to 29 years old have used a multi-restaurant delivery website or app service in the past 90 days, followed by 51% for those 30 to 44 years old, 29% for those 45 to 60, and just 14% for those 60 and over.

Levin, Heath and Levangie (2015) through their study tried to identify segments of users and non-users of food-related technology and described alterations in their demographic physiognomies, food-related app use and interest in food-related app functionality. Their study indicated that there were differences in segments based on age such that younger adults (ages 18–34) were more likely to be engaged with technology and food than mature adults (ages 55+).

3. RESEARCH GAP

On the basis of past studies conducted in the area of online food ordering, there is a clear indication which advocates lots of changes in this scenario especially when technology is growing by leaps and bounds. Most of the studies have been embarked on to apprehend the attitude, perception, preference etc. towards online food ordering. With the boom of smartphones in India, more and more people prefer using mobile apps for doing routine things. Custom-made offerings as per the customer’s predilections allow these mobile apps to bring in better results and make food ordering an easy task. Due to this change, there arises a need to study and analyse the impact of demographics associated with food ordering through apps. There is also a need to understand the impact of this paradigm shift in the food ordering decisions of the consumers. Most of the studies conducted in this area mainly focuses on the general attitude, perception etc. of customers and majority of the studies are from the restaurants perspective. This study mainly focuses on top 5 demographic factors which majorly impact and influence the food ordering decisions through apps.

4. OBJECTIVES OF THE STUDY

4.1 Primary Objective

To understand the impact of demographics like age, gender, income range, educational qualification and marital status on mobile app food ordering.

4.2 Secondary Objective

- Preference of ordering food through mobile apps.
- Awareness of food apps.
- Reason for not using downloaded mobile apps

5. RESEARCH DESIGN

5.1 Type of research

This study was mainly an exploratory study to understand the association of demographics on food ordering through apps as this paper seeks to understand the impact of various demographics affecting the food ordering through mobile application platforms

5.2 Sampling frame

The aim was to collect data from 350 samples who were homogeneous, and so all subsets of the frame were given an equal probability. Non-probability sampling technique was used. Convenience sampling method was used under non-probability technique. The population consisted of post graduate students, self-employed, homemaker, and private company employee of different areas of Wakad (Pune). 279 Google forms were completely filled and duly submitted online.

5.3 Tools used

Formal and structured questionnaire created in Google forms, Excel sheet, bar graphs, and pie charts

5.4 Statistical tests

- Cronbach’s alpha
- Chi square test

6. ANALYSIS AND INTERPRETATION

To understand the behaviour of customers regarding usage of mobile apps for ordering food, demographic physiognomies of the samples were deliberated upon. They are the vital variables as it helps to determine the consumption pattern and customer behaviour regarding these apps. It is of the general belief that as the gender, income, age, education and marital status of the customer varies, it may or may not significantly impact the usage pattern of mobile food apps. The online responses of the customer about the demographic factors affecting usage were tabulated and analysed to understand their behaviour.

Table 1: Demographic Table: App User’s another mode

Category	Number	Percentage
Gender (app users)	246	
Male	172	69.92
Female	74	30.08
Gender (other mode)	33	
Male	12	36.36
Female	21	63.64
Age Group(app users)	246	
20-25	151	61.38
26-35	81	32.92
36-45	14	5.70
Age Group(other mode)	33	
20-25	7	21.21
26-35	16	48.48
36-45	10	30.31
Income Range (app users)	246	
3 lacs-6 lacs	167	67.88
7 lacs to 10 lacs	44	17.89
11 lacs-14 lacs	35	14.23
Income Range (other mode)	33	
3 lacs-6 lacs	19	57.57
7 lacs to 10 lacs	12	36.36
11 lacs-14 lacs	02	6.07
Educational Qualification(app users)	246	
Graduate	131	53.25
Post Graduate	115	46.75
Educational Qualification(other mode)	33	
Graduate	12	36.36
Post Graduate	21	63.64
Marital Status(app users)	246	
Married	18	7.32
Unmarried	228	92.68
Marital Status(other mode)	33	
Married	18	54.54
Unmarried	15	45.46

7. CHI SQUARE TEST BETWEEN DEMOGRAPHIC FACTORS AND USAGE OF FOOD APP

In this research the relationship between demographic factors affecting usage of food apps has been tested with the help of chi-square test. Cronbach’s alpha was used to check reliability of the data set. The Cronbach’s alpha of the data came to .967 which is considered to be good. Data is considered to be consistent if it’s more than 0.6 which establish the premise of reliability of data which establishes the internal validity of the data to ratify the conclusion drawn from the dataset. Chi square test was applied for all the 5 different hypothesis and the following results were derived.

7.1 Association of age on food ordering through mobile apps

Ho: There is no significant association between age and usage of mobile apps for food ordering

H1: Age of the respondents is significantly associated with mobile apps for food ordering.

Table 2: Mobile app user * Age Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	30.806 ^a	2	.000
Likelihood Ratio	26.033	2	.000
Linear-by-Linear Association	28.856	1	.000
N of Valid Cases	279		

a. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 2.84.

As seen above, it can be clearly understood that age has significant impact on usage of mobile apps of food ordering. In this case the null hypothesis (H0) will be rejected and the alternate hypothesis (H1) will be accepted.

Young India’s appetite is one of the strategic drivers for demand in the food and beverage business. Data indicates that 20 to 25-year-olds spend the maximum time on mobile apps, and the time spend on mobile apps declines with each ensuing age group (Table I). Time-starved and convenience-seeking consumers led by the millennial generation are displaying a mounting craving for having food delivered at home, a bright spot in an otherwise lacklustre restaurant industry. Food subscription boxes remain one of the prime categories in the swarming subscription box industry, which is a very attractive factor for the 20-25 age group. Reviews also play a prodigious role for the millennial when selecting the app through which they want to order food. One important finding reveals that the offers and promotions given by mobile apps widely attracts the attention of the 20-25 age group. The age group of 26-35 mainly order food due to easy accessibility, convenience and on time delivery. The 36-45 age group is a bit reluctant to use mobile apps, specially the early 40’s group, as they are less likely to order food frequently due to health constraints and also due to lack of inclination towards usage and knowledge factor being low.

7.2 Association of gender on food ordering through mobile apps

Ho: There is no significant association between gender and usage of mobile apps for food ordering

H1: Gender of the respondents is significantly associated with mobile food apps for food ordering

**Table 3: Mobile app user * Gender Cross tabulation
Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	14.589 ^a	1	.000		
Continuity Correction ^b	13.133	1	.000		
Likelihood Ratio	13.738	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	14.537	1	.000		
N of Valid Cases	279				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 11.24.

b. Computed only for a 2x2 table

As seen above, it can be clearly understood that gender has significant association on usage of mobile apps of food ordering. There is no sufficient evidence to accept null hypothesis hence we accept alternative hypothesis.

There has been an astounding increase in the number of working women in India who are employed in lucrative industries. Sectors like IT, entertainment, fashion etc. tend to offer good pay packets. Due to this there’s a drastic change in routine, life styles and food habits. Working women from nuclear families tend to order food from apps due to time crunch as most of their productive hours are spend in commuting and work. Females prefer to order food during weekdays and like to get it delivered at their work addresses. Males are unbeatable when it comes to food ordering through mobile apps. As indicated in the Demographic Table I, a whopping 70% of males tend to prefer food ordering through mobile apps due to convenience factor and variety of payment options as compared to 30% females. Men usually liked to order food during late night hours and weekends. Also men prefer to place pick up orders. One more interesting fact indicates that females order healthy food as compared to males who prefer meat based and junk food options.

7.3 Association of income on food ordering through mobile apps

Ho: There is no significant association between income and usage of mobile apps for food ordering

H1: Income of the respondents is significantly associated with mobile food apps for food ordering

**Table 4: Mobile app user * income
Chi-Square Tests**

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	6.877 ^a	2	.032
Likelihood Ratio	6.390	2	.041
Linear-by-Linear Association	.026	1	.872
N of Valid Cases	279		

1 cells (16.7%) have expected count less than 5. The minimum expected count is 4.38.

As seen from the above results, it’s quite evident that usage of mobile app for food ordering has no significant relationship with income. In this case the null hypothesis will be accepted and alternate hypothesis will be rejected.

The research results indicated that as the income increased the usage of food apps for food ordering decreased, as mentioned in Table I. The above result confirms the famous Engel curve, hypothesized in the mid- 1800s, conjectured that the share of total spending allocated to food would fall as income increased the probable reason being demand for "quality" and "convenience" changes as income changes. Another reason for the low income range spending more is due to cheap options offered by various apps. Young working professionals earning in the age range of 3-6 lakhs are mostly bachelors and prefer food apps as they get many offers, promotions and discounts.

7.4 Association of marital status on food ordering through mobile apps

Ho: There is no significant association between marital status and usage of mobile apps for food ordering

H1: Marital status of the respondents is significantly associated with mobile food apps for food ordering

Table 5: Mobile app user * Martial status
Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	57.750 ^a	1	.000		
Continuity Correction ^b	53.624	1	.000		
Likelihood Ratio	40.312	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	57.543	1	.000		
N of Valid Cases	279				

a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 4.26.

b. Computed only for a 2x2 table

In this case the results show that marital status does have impact on usage of mobile apps for food ordering. The null hypothesis will be rejected and alternate hypothesis will be accepted.

Unmarried individuals definitely tend to order food through mobile apps more frequently as compared to married folks. Hectic work schedules, boredom to cook for a single person, apps providing various discounts, social influence etc. lead to single people ordering food through mobile apps on a frequent basis. Married people on the other hand either have maids or prefer to cook.

7.5 Association of educational qualification on food ordering through mobile apps

Ho: There is no significant association between educational qualification and usage of mobile apps for food ordering

H1: Educational qualification of the respondents is significantly associated with mobile food apps for food ordering

Table 6: Mobile app user * Qualification

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.322 ^a	1	.068		
Continuity Correction ^b	2.680	1	.102		
Likelihood Ratio	3.352	1	.067		
Fisher's Exact Test				.094	.050
Linear-by-Linear Association	3.310	1	.069		
N of Valid Cases	279				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 16.09.

b. Computed only for a 2x2 table

The null hypothesis is accepted and alternate hypothesis stands rejected in this case as contrary to the belief that educational qualification has a very strong influence on food ordering through mobile apps, in this research the findings suggest quite the opposite which shows that educational qualification does not have any impact on app usage for food ordering. Graduates and post graduates were a part of this research and it was found that 53% of graduates preferred mobile apps for ordering as compared to only 47% of post graduates ordering food through apps. The primary reason for this is being tech savvy.

Smart phones are no more luxury items but are considered to be a necessity. A person with a 10k income can also afford to buy smartphones now-a-days. Most of the smartphones have good memory for downloading apps .As the young population is becoming very tech savvy, education qualification is not at all a barrier to become familiar with apps. Majority of the graduates in this research tend to order food from apps as it is very user friendly, quick and expedient.

7.6 Secondary Objectives

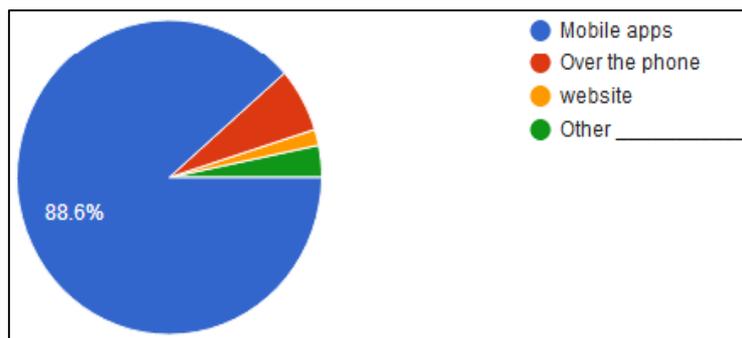


Fig. 1: Preference of ordering food through mobile apps

The above pie chart clearly indicates that the 88.6 respondents were using mobile apps to order food online.

- 6.5% respondents preferred directly calling the restaurant and ordering food.
- 1.6% preferred ordering food directly from the website.
- 3.3% were still traditional in their food ordering

Majority of the respondents felt that they can save considerable amount of money by ordering food through mobile apps as majority of apps provided discount vouchers and good offers. Cash backs was also one of the main motivating factor. Many respondents were relaxed in ordering through mobile apps than by calling from their mobile phones. It was easier to open the app and compare various menu, prices, varieties and ratings and accordingly order the best.

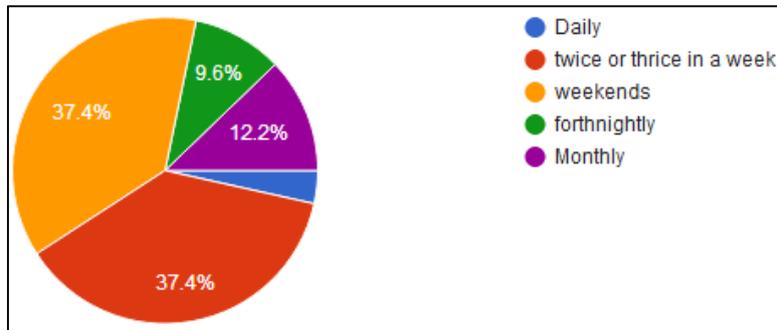


Fig. 2: Frequency of ordering through mobile apps

As per the above chart,

- 37.4% people order twice or thrice a week and the same percentage of people order during the weekends also
- 9.6% order fortnightly
- 12.2 % order once in a month
- 3.4 % order daily

Employed people who need to travel long hours and reach workplace do not get adequate time to cook in the morning time, nor do they have the motivation to cook after reaching home after a hectic day in the workplace. That's why there is an upsurge in weekday's orders and the various apps also give a lot of discounts and offers on orders which are received on weekdays. Those who order monthly/fortnightly are those who prefer home cooked food and are health/hygiene/price conscious group.

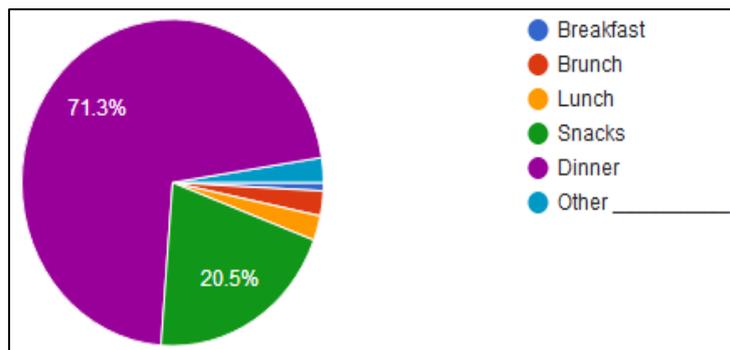


Fig. 3: Preferred time of food ordering

- 71.3% tend to prefer food ordering during dinner time
- 20.5% prefer ordering snacks during evening
- 2.5% order food during brunch time
- 0.8% order food for breakfast
- 2.5 prefer online apps for ordering lunch
- 2.5 people prefer ordering food items in mid-afternoon

Peak time for food ordering is during night as most of them prefer to order dinner

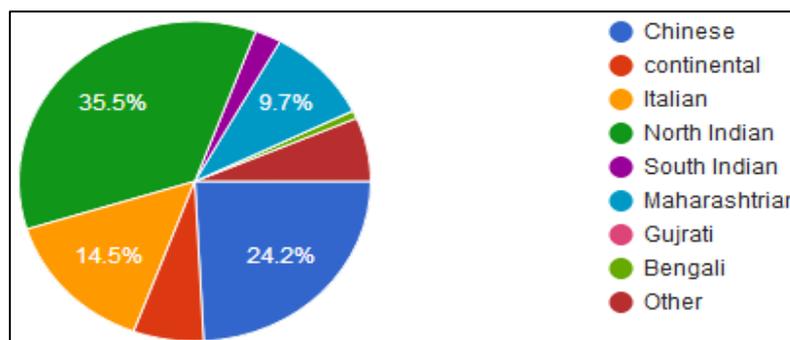


Fig. 4: Preference of cuisines ordered

- This research indicated that North Indian cuisine was the most preferred one as 35.5% preferred ordering it
- The next most preferred cuisine was Chinese with 24.2% ordering it
- Italian cuisine was also a hit as 14.5% people preferred ordered it through apps.
- 9.7% people preferred ordering Maharashtrian cuisine

8. CONCLUSION AND IMPLICATIONS

This study found that food ordering through mobile app is reasonably popular amongst the people residing in Pune, Maharashtra, because more than 80% of the survey respondents have used a mobile app for food ordering in recent past. As urban professionals (both genders) are rapidly increasing and due to this constant influx of professionals, the food delivery and restaurant segment is now thriving at an intense pace in the Indian landscape.

A strong support to this scenario is the growth in the number of smartphones and food delivery apps. Food delivery apps have become quite popular across India. There are numerous food delivery apps in India that can download on smart phones to order food on the go and from the comfort of homes. The present study found a significant relationship between demographic factors influencing food ordering from delivery apps.

- Youngsters and working individuals are more inclined to online food ordering through apps.
- Males tend to order more frequently from food apps as compared to females.
- Income in no way influenced food ordering through apps
- Marital status staunchly impacts the ordering of food through apps as unmarried individuals prefer eating from outside rather than having home cooked food.
- As against the belief, educational qualification does not have any impact on food ordering through apps.
- The study also found that majority respondents of the research used food apps but a few of them were reluctant to use it as they had concerns about quality and were also health conscious.

A few implications that can be seen are:

- Increase in app usage for food ordering would mean bad news for appliance sales.
- As more and more food business operators prefer smaller places to run their business ,commercial real estate market may be affected due to this as prime real estate locations will no more be required to satisfy growing delivery demand as opening more full-service locations will be ruled out.
- Many brands are now offering ready to eat meals, and heat and eat options.
- More eateries and quick service restaurant chains are offering delivery and making their on the go menu options more accessible.

In a nutshell, value, ease of use, social norms and pressures, resources available to the individual, hedonic motivation, perceived price value, previous experience, and habit are the factors that majorly influence the behavioural intention to use mobile internet technology.

9. FUTURE RESEARCH SCOPE

Based on this research paper, further studies can be carried out to understand the shortcoming of various apps, and criteria of selection of apps by the consumer. This research was carried out in Pimpri Chinchwad region and there is quite a probability that the findings may differ in other regions of Pune and Maharashtra.

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