Original Research Article

Pattern and Determinants of Online Fast-Food Delivery Applications Among General Population in Saudi Arabia

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Abstract

Background: The advent of online fast-food delivery applications has transformed the food industry, providing consumers with unprecedented convenience and choice in ordering their favourite meals, which can be attributed to advancements in technology and changing consumer preferences. *Methodology:* A cross-sectional, community-based study was conducted with an estimated minimum sample size of 385, targeting the adult Saudi population. A Self-administered, structured questionnaire was used for data collection. The quantitative data was collected through an online survey. *Results:* We found usage of online food delivery application to be 65% among our study population. The most common frequency pattern of online food delivery was observed to be 1-2 times per month reported by 19.7% respondents, followed by 2-4 times per week reported by 15.9%, while about 5.7% reported that they use online food delivery for 2-4 times per week. No statistically significant association was observed between usage online fast-food delivery and age, gender, educational level, employment status and marital status (p>0.05). *Conclusions:* We found widespread usage of online food delivery across different socio-demographic sub-groups.
Keywords: Online food delivery, Saudi Arabia, fast foods, community-based study.

INTRODUCTION

The advent of online fast-food delivery applications has transformed the food industry, providing consumers with unprecedented convenience and choice in ordering their favourite meals [1]. The emergence and popularity of online fast-food delivery applications can be attributed to advancements in technology and changing consumer preferences [2]. With the widespread adoption of smartphones and increased internet connectivity, consumers now have easy access to a variety of online platforms for ordering food [3,4]. These applications offer a seamless and user-friendly experience, allowing customers to browse menus, customize orders, track deliveries, and make payments with just a few taps on their mobile devices. By 2028, in Saudi Arabia, the number of online food delivery users are expected to 19.3 million [5].

To gain a comprehensive understanding of the pattern and determinants of online fast-food delivery application usage among the general population, research studies have been conducted worldwide. There are very few studies conducted in this domain in Saudi Arabia, so the present study had been taken aiming to determine the pattern of usage of online food delivery among general population and the associated socio-demographic factor.

METHODOLOGY

Study Design: Descriptive, cross-sectional, community-based study. Present study is part of a larger study which was conducted among general popaulation.

Participants: Saudi population living in Saudi Arabia with including who are internet users among who are 10 years and above. All non-internet users are excluded.

Sample size: The sample size was calculated by using the formula $N = Z^2 \times (p) \times (1-p)/d^2$, where N= sample size, Z = level of confidence (95%), P = expected true proportion (0.5), desired precision (5%). The minimum sample size was estimated to be 385.

Study Instrument: A self-administered, structured questionnaire was used to collect the quantitative data. The questionnaire was pretested and validated prior to the data collection.

Data Collection: The data was collected online through Microsoft forms and was distributed on various social media platforms such as Twitter, WhatsApp, etc. The data was collected the month of October 2022. The total number of completed survey instruments collected at the end of the data collection period was 477, which were considered for final analysis.

Statistical Analysis: Data was exported from the Microsoft forms and was cleaned/coded on MS Excel before exporting it into statistical package (SPSS version-21). Further coding and transformation of the variables was done on SPSS. Data was presented as pie charts, bar diagrams, and in the tables as frequency and percentages. The Chi-square test was applied to find out the association between categorical variables. A P-value of $p<0.05$ was used to define the statistical significance.

Ethical Consideration: Prior approval was obtained from the institutional ethical committee. No personal data was collected, and prior consent was taken from the subjects.

RESULTS
Socio-demographic information the study respondents

A total of 477 respondents were included in the final analysis. Table 1 is showing the basic information of the respondents. As shown in the table 1, the highest proportion of our respondents belonged to the age group 31-40 years, while the lowest proportion was noted from less than 30 years. Males predominated the sample among the study respondents (62% vs 38%).

Table 1: Socio-demographic information the study respondents (N=477)

Socio-demographic Factor		Frequency	Percentage
Gender	Female	182	38.2%
	Male	295	68.2%
Age group	10-18 years	30	6.3%
	19-30 years	140	29.4%
	31-40 years	174	36.5%
	41-50 years	88	18.4%
	51-60 years	38	8%
	above 60	7	1.5%
Marital status	Single	133	27.9%
	Married	299	62.7%
	Divorced	38	8.0%
	Widower	7	1.5%
Education level	No formal education	3	0.6%
	Primary / Preparatory	20	4.2%
	Intermediate	28	5.9%
	Secondary / High school	103	21.6%
	University or higher	323	67.7%
Employment status	Employed	316	66.2%
	Not Employed	80	16.8%
	Student	81	17.0%
Monthly Income	Enough and more	67	14.0%
	Enough	238	49.9 %
	Not enough	172	36.1 %
	Diabetic	50	10.5%

About 62% of our respondents were married. Similarly, with respect to educational status, the highest proportion (67.7%) was noted from those educated up to the university level or higher. About 66% of our respondents were employed, while the students comprised about 17% of the study population. Regarding the monthly income, we asked for their self-rating of the sufficiency of their monthly income. About 50% reported their income to be enough to meet their needs.

Pattern of online food delivery applications among study participants.

As shown in the figure 1, about 65% of our participants responded that they use the online application for delivering the fast-food items. Figure 2 is showing the frequency pattern of online food delivery applications among study participants. The most common frequency pattern of online food delivery was observed to be 1-2 times per month reported by 19.7% followed by 2-4 times per week reported by 15.9%, while about 5.7% reported that they use online food delivery for 2-4 times per week.
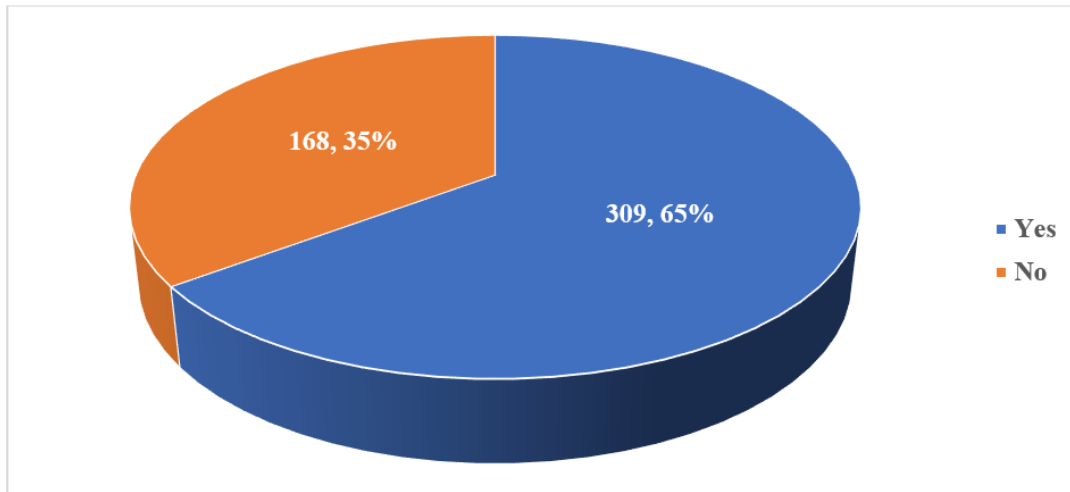
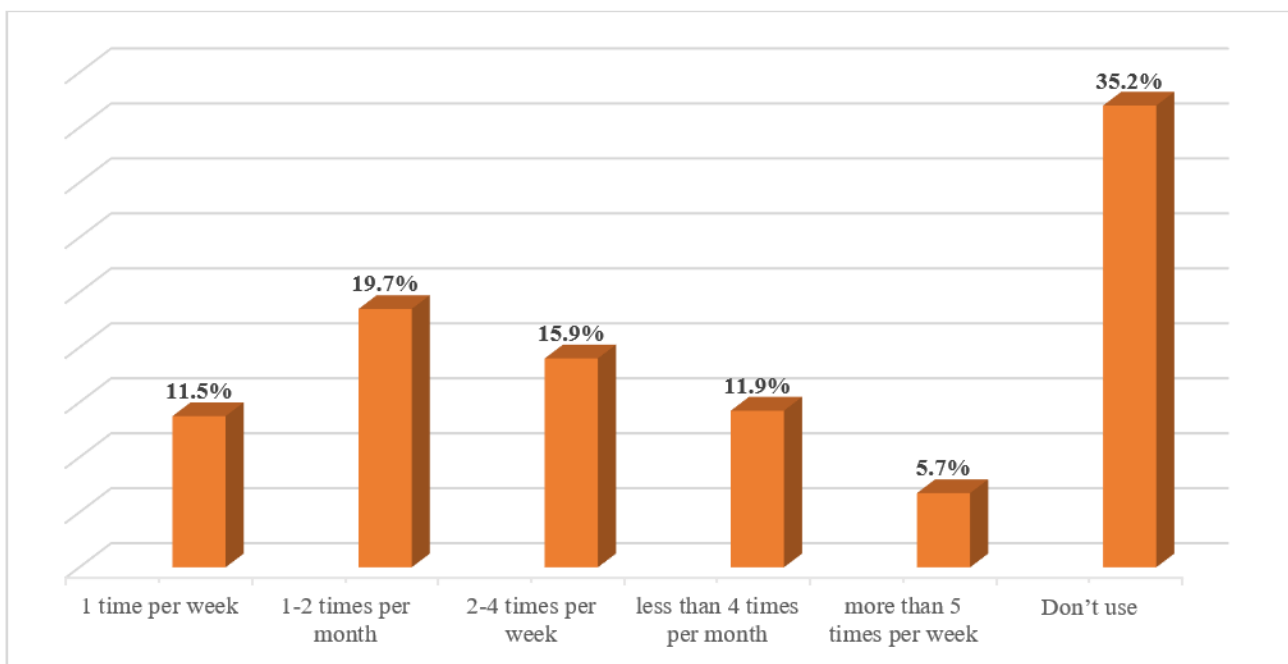**Figure 1: Usage of online food delivery applications to order fast food**

Figure 2: Frequency of using online food delivery application among study respondents (N=477)

Association of online food delivery usage with certain socio-demographic factor among study participants.

Table 2 is showing the association between usage of online food delivery application with selected socio-demographic variables. Males reported usage of online food delivery application to be 56% as compared to 44% among females but this was not statistically

significant (p>0.05). Age wise, it was reported to be highest (31%) among 31-40 years age group, however, with no statistically significant association (p>0.05). Similarly, no statistically significant association was observed between usage online fast-food delivery and age, gender, educational level, employment status and marital status (p>0.05).

Table 2: Association of online delivery application usage with certain socio demographic variables (N=477)

Socio-demographic Factor		Use of online delivery application for fast food delivery				Statistical Significance
		No		Yes		
		n	%	n	%	
Gender	Female	46	27.4%	136	44.0%	χ^2= 12.728 d,f.=1 p<0.001
	Male	122	72.6%	173	56.0%	
Age group	10-18 years	9	5.4%	21	6.8%	χ^2= 8.054

Socio-demographic Factor		Use of online delivery application for fast food delivery				Statistical Significance
		No		Yes		
		n	%	n	%	
	19-30 years	48	28.6%	92	29.8%	d,f.=5 p=0.153
	31-40 years	71	42.3%	103	33.3%	
	41-50 years	28	16.7%	60	19.4%	
	51-60 years	8	4.8%	30	9.7%	
	above 60	4	2.4%	3	1.0%	
Education Level	No formal education	0	0%	3	1%	χ^2= 3.855 d,f.=4 p=0.426
	Primary / Preparatory	10	6.0%	10	3.2%	
	Secondary / High school	36	21.4%	67	21.7%	
	Intermediate	11	6.5%	17	5.5%	
	University or higher	111	66.1%	68.6%	2132	
Monthly Income	Enough	93	55.4%	145	46.9%	χ^2= 3.468 d,f.=2 p=0.177
	More Than enough	19	11.3%	48	15.5%	
	Not Enough	56	33.3%	116	37.5%	
Employment status	Employed	116	69.0%	200	64.7%	χ^2= 1.056 d,f.=2 p=0.590
	Not Employed	27	16.1%	53	17.2%	
	Students	25	14.9%	56	18.1%	
Marital Status	Divorced	14	8.3%	24	7.8%	χ^2= 1.056 d,f.=2 p=0.590
	Married	111	66.1%	188	60.8%	
	Single	43	25.6%	90	29.1%	
	Widower	0	0.0%	7	2.3%	
	Diabetic	21	12.50%	29	9.40%	

DISCUSSION

Present study has attempted to determine the online food delivery applications usage among general population in Saudi Arabia. We have reported the usage of food delivery applications usage to be 65%. Similar to our findings, it has been previously reported to be about 61% during COVID-19 pandemic [6]. We found no statistically significant association between usage of food delivery apps and socio-demographic variables. Slightly higher proportion of males have reported food delivery apps usage compared to female (44%). In contrast, one study from Saudi Arabia has reported it to be higher among females (54.5%) compared to females, this was during the COVID-19 locked down period [6]. Another study conducted in Saudi Arabia has reported age and education level to be the significant associated with usage food delivery apps, during COVID-19 locked down phase [7].

It has been reported increased usage that of FD apps has led to increased fast-food consumption [5]. There are many factors cited for increased used of ED apps, even during the post-pandemic period. One such study conducted in Saudi Arabia exploring consumer behaviours on FD app usage had reported the social influence to be the most strong factor, along with performance expectancy [8].

Higher reliance of outside food has been linked to less consumption of healthier food item such as fresh vegetables and fruits, which may lead to increased obesity and other health related problems [9]. The association between the higher use of online delivery with the nutritional quality of the food consumed has the public health policy concern [10].

CONCLUSION

We found widespread usage of online food delivery among study participants. Interestingly, we didn't observe any association with different socio-demographic variables, which indicates that the popularity of these apps is across different population sub-groups.

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