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Digital Dining and Grocery Shopping: Consumer Behaviour Change in Covid-19 Pandemic-Era in South Korea

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ABSTRACT: The COVID-19 pandemic changed conventional consumption habits profoundly and pushed the development of digital food and grocery delivery services around the world. The present study investigates changes in South Korean consumer behaviours in the usage of food delivery and online grocery apps before and during the pandemic, and whether these changes will be sustained. Survey results were gathered from 200 respondents using a quantitative, deductive approach, and evaluated by descriptive statistics, cross-tabulations, and chi-square tests of homogeneity. The results show a statistically significant increase in usage for both types of applications. The number of respondents who used food delivery apps at least three times a week jumped from 8.5% pre-pandemic to 44.5% during the pandemic ($\chi^2(2, N = 393) = 93.97, p < .001$, Cramér's $V = .49$). Similarly, weekly online grocery usage considerably increased ($\chi^2(2, N = 211) = 47.01, p < .001$, Cramér's $V = .47$). Convenience was the primary self-reported rationale for increasing use, and not infection worries or social distancing rules, and 80.5% of respondents said they intended to continue using at least one sort of delivery app after the pandemic. The results indicate that the pandemic served as a large-scale forced experiment that shifted from situational adoption to habitual use motivated by convenience. This study provides theoretical implications for the consumer behaviour change during the crisis, and practical suggestions for delivery platforms that want to convert the pandemic-acquisition to long-term retention.

1. INTRODUCTION

The worldwide pandemic of COVID-19 at the end of 2019 brought a paradigm change in several industries with dramatic impact on customer behaviour in travel, entertainment, retail and food service [1, 2]. In particular, the retail and restaurant industry has witnessed the pandemic accelerating an existing shift towards digital consumption and a significant increase in the use of mobile shopping apps [1, 3]. South Korea offers a very instructive setting to analyse this transformation. The country has one of the highest smartphone penetration rates in the world and a well-developed online-to-offline (O2O) delivery ecosystem [4, 5]. In 2020, online retail channels experienced a significant increase in product sales volumes as consumers were confined at home due to social distancing measures [6, 7]. Offline food and beverage services suffered a sharp decline due to public health concerns and fear of infection, whereas food delivery and online grocery platforms experienced an unprecedented increase [8, 9].

When COVID-19 broke out, South Korean consumers decreased eating out and resorted to home-cooked meals delivered, and many expanded their digital shopping to include home cooking ingredients. Delivery apps were already popular in South Korea prior to the pandemic [5, 10], but strict social distancing regulations resulted in an immediate increase in consumer reliance on digital platforms and broadened the range of product categories purchased through them [9].

Despite a rapidly growing literature on technology acceptance and continuance intention for food delivery applications [11, 12, 13, 14], comparatively few studies have directly compared self-reported usage frequency across the pre-pandemic and pandemic periods within a single sample, and fewer still have jointly examined food delivery and online grocery applications—two related but distinct O2O categories—in the Korean context. This study addresses that gap. Drawing on survey data from 213 respondents, of whom 13 were excluded as unsuitable for analysis, yielding a final sample of 200 Korean respondents, this study (a) quantifies the change in usage frequency of food delivery and online grocery applications between the pre-pandemic and pandemic periods, (b) identifies the motivations consumers themselves attribute to their increased usage, and (c) gauges the likelihood of sustained platform engagement after the pandemic.

The study makes three contributions. First, it provides empirical evidence, tested inferentially rather than described only, of the magnitude of pandemic-induced behavioural change across two O2O categories. Second, by showing that convenience outweighed pandemic-specific fears as the dominant self-reported motivation, it supports the theoretical argument that crisis conditions can operate as forced trials that convert situational adoption into value-based, habitual use [2, 10, 14]. Third, it offers managerial guidance for delivery enterprises seeking to retain pandemic-era users in a normalized market.

1.1 Consumer Behaviour and Pandemic Disruptions

Consumer behaviour encompasses the totality of decisions regarding the acquisition, consumption, and disposition of goods, services, and experiences [15]. Because corporate strategy relies heavily on predicting these behaviours, understanding the motives underlying them is paramount. Consumers base future behavioural decisions on past experiences and environmental stimuli, which generate hedonic, social, or utilitarian motivations [15, 16]. When the environment changes radically and rapidly, established decision heuristics are disrupted and consumers respond by reacting, coping, and ultimately adapting to new circumstances [17].

The COVID-19 pandemic represents one of the most significant modern shocks to consumer behaviour. Sheth [2] argued that the pandemic disrupted long-standing consumption habits by imposing new constraints of time and location, and that some of the resulting behaviours—particularly the embrace of digital commerce—were likely to outlast the crisis itself. Empirical work supports this view: the pandemic abruptly altered shopping habits and elevated utilitarian motivations over hedonic ones during the crisis period [3, 18]. In the earliest phase, lockdown fears drove unusual and stockpiling-oriented purchasing, a pattern explained through the stimulus–organism–response framework in which extreme environmental stimuli overload cognitive processing and provoke emotion-driven responses [19]. As the crisis stabilized, emergency-driven purchasing evolved into a more sustained preference for online channels grounded in safety and convenience [18]. In South Korea, governmental interventions—including nationwide social distancing campaigns and consumption support policies—further anchored consumers to their homes and accelerated the shift toward at-home, digitally mediated consumption [9].

1.2 Online Food Delivery and Grocery Applications

Pandemic-driven lifestyle changes reinforced consumption paradigms built on non-face-to-face ordering, unmanned retail, and home delivery. Food delivery applications, enabled by the ubiquity of smartphones, have transformed the dining environment by serving as comprehensive platforms that bridge restaurants and consumers while addressing concerns such as hygiene information, price transparency, and review accessibility [11, 13]. Research on the drivers of adoption and continued use of these platforms consistently identifies convenience-related constructs—perceived usefulness, performance expectancy, ease of use, and time saving—as central [5, 12, 13]. Zhao and Bacao [14], studying users during the pandemic period in China, found that performance expectancy, task–technology fit, trust, and satisfaction jointly shaped continuance intention, while Hong et al. [8] demonstrated that the salience of specific antecedents shifted between the pre-pandemic and pandemic periods.

A parallel literature documents the pandemic-era expansion of online grocery shopping. Evidence from Taiwan shows that the local severity of the outbreak directly increased demand for online food shopping services [20], while survey evidence from the United States indicates that consumers became more likely to prefer delivery or pick-up options over in-store shopping as perceived risk rose [21]. Studies in other national contexts similarly link perceived infection risk and mobility restrictions to

greater reliance on delivery applications [22]. Collectively, this literature suggests that pandemic conditions provided both the push (risk avoidance, mandated distancing) and the opportunity (forced trial of digital platforms) for durable behavioural change.

1.3 The South Korean Delivery Ecosystem

The South Korean market is dominated by highly specialized O2O platforms and is characterized by intense competition on delivery speed and logistics innovation [4, 6]. In the prepared-food sector, large domestic platforms evolved from simple restaurant-listing services into comprehensive food-tech enterprises that integrate ordering, payment, review, and delivery functions [4, 10]. In the online grocery sector, early-morning and cold-chain delivery models pioneered by specialized fresh-food retailers compelled major distribution companies to develop comparable capabilities, making next-day or dawn delivery a de facto industry standard [6]. Prior Korean studies have examined the adoption of O2O food delivery services [5], the determinants of continuous use intention [10], user familiarity and satisfaction [4], and channel choice during the pandemic [9]. However, direct pre-pandemic versus pandemic comparisons of usage frequency that span both food delivery and grocery applications remain scarce, motivating the present study.

1.4 Research Questions

Based on the literature reviewed above, this study addresses the following research questions:

RQ1. How did COVID-19 affect the frequency of food delivery application usage among South Korean consumers?

RQ2. How did COVID-19 affect the frequency of online grocery shopping application usage among South Korean consumers?

RQ3. What motivations do consumers attribute to their increased usage of these applications during the pandemic?

RQ4. To what extent do consumers intend to continue using these applications after the pandemic?

2. MATERIALS AND METHODS

2.1 Research Design and Instrument

This study employed a quantitative, deductive, cross-sectional survey design to identify changes in the usage of grocery and food delivery applications attributable to the COVID-19 period. The research instrument—a structured online questionnaire—comprised four sections: (a) screening questions confirming residence in South Korea and awareness of the application categories under study; (b) demographic items covering gender, age, and residential arrangement; (c) behavioural items measuring self-reported weekly usage frequency of food delivery and online grocery applications before and during the pandemic, together with the primary motivation for any increase in usage; and (d) a prognostic item measuring intended usage after the pandemic. Usage frequency was measured on a five-category ordinal scale (0 times a week; 1–2 times a week; 3–4 times a week; 5 or more times a week; no experience with the application type).

2.2 Sample and Data Collection

The survey was administered online, yielding 213 responses; after data screening, 200 valid responses were retained for analysis. To reach a diverse yet targeted sample of digitally active consumers, participants were recruited through the Keimyung University network and various social media channels. Participation was voluntary and anonymous, and no personally identifying information was collected. The recruitment strategy produced a convenience sample skewed toward young adults, which is acknowledged as a limitation but is also consistent with the demographic profile of the heaviest users of delivery applications in South Korea [4, 10].

2.3 Data Analysis

Data were analysed using IBM SPSS 27 Statistics. Descriptive frequencies and cross-tabulations were generated for all study variables. To test whether the distribution of usage frequency differed between the pre-pandemic and pandemic periods, chi-square tests of homogeneity were conducted separately for food delivery and online grocery applications. For inferential testing, respondents reporting no experience with the relevant application type were excluded, and the two highest usage categories (3–4 times and 5 or more times a week) were collapsed into a single “3 or more times a week” category to satisfy the expected-cell-count assumption of the chi-square test; all expected cell counts in the final tests exceeded five. Cramér's V was computed

as the effect size measure. Because the survey captured the two time periods retrospectively within a single questionnaire rather than as linked panel observations, the tests compare the marginal distributions of the two periods; this analytic constraint is addressed in the limitations section. The significance level was set at $\alpha = .05$.

3. RESULTS AND DISCUSSION

3.1 Demographic Profile

The demographic profile of the respondents is presented in Table 1. The sample slightly skews female (54%) and is predominantly composed of young adults aged 18–23 (81.0%), reflecting the recruitment channels and the heavy integration of mobile technology within this demographic. A majority of respondents (61.0%) lived with family, while 39.0% lived alone or in shared housing or dormitories.

Table 1. *Demographic Profile of Respondents (N = 200)*

Variable	Category	n	%
Gender	Male	92	46.0
	Female	108	54.0
Age	18–20 years	70	35.0
	21–23 years	92	46.0
	24–26 years	26	13.0
	27–29 years	7	3.5
	30 years or more	5	2.5
Residential type	Living alone	40	20.0
	Sharehouse or dormitory	38	19.0
	With family	122	61.0

3.2 Changes in Application Usage Frequency (RQ1 and RQ2)

Table 2 and Figure 1 present the distribution of weekly usage frequency before and during the pandemic. A dramatic upward shift is evident for food delivery applications: before COVID-19, only 8.5% of respondents used them three or more times a week, whereas during the pandemic this figure rose to 44.5%. Correspondingly, the proportion reporting zero weekly usage fell from 33.5% to 4.5%. Online grocery applications exhibited a similar, albeit more moderate, trajectory: moderate usage (1–2 times a week) nearly doubled from 18.0% to 32.0%, and the proportion using such applications three or more times a week rose from 1.5% to 11.5%. Notably, nearly half the sample (46.5%) had no experience with online grocery applications even during the pandemic, indicating substantial remaining headroom in this category.

Table 2. *Weekly Application Usage Frequency Before and During COVID-19 (N = 200)*

Application	Weekly usage	Before (n)	Before (%)	During (n)	During (%)
Food delivery	0 times a week	67	33.5	9	4.5
	1–2 times a week	112	56.0	99	49.5
	3–4 times a week	15	7.5	74	37.0
	5 or more times	2	1.0	15	7.5
	No experience	4	2.0	3	1.5
Online grocery	0 times a week	65	32.5	20	10.0

	1–2 times a week	36	18.0	64	32.0
	3–4 times a week	3	1.5	20	10.0
	5 or more times	0	0.0	3	1.5
	No experience	96	48.0	93	46.5

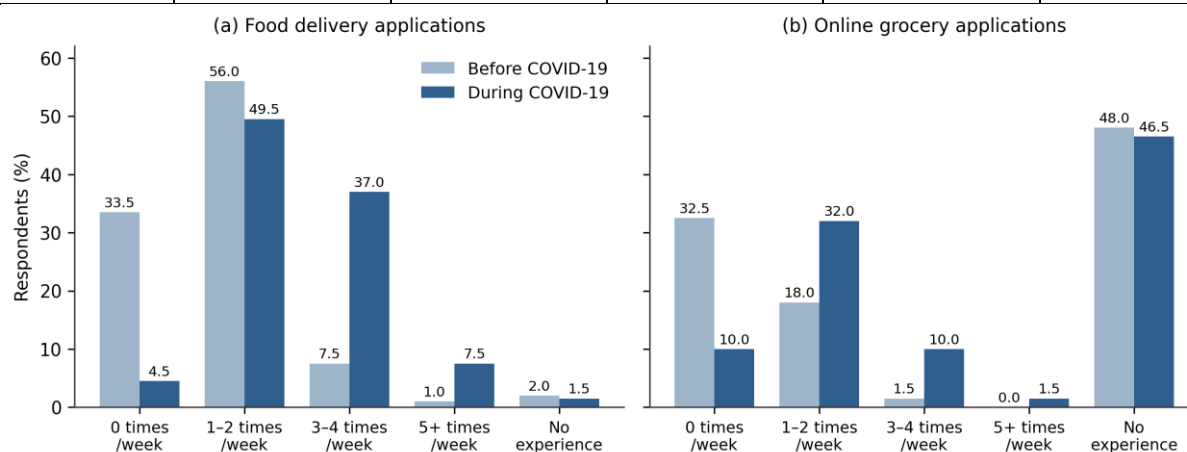


Figure 1. Weekly usage frequency of (a) food delivery and (b) online grocery applications before and during COVID-19 (N = 200).

The chi-square tests of homogeneity confirm that these shifts are statistically significant (Table 3). For food delivery applications, the distribution of usage frequency during the pandemic differed significantly from the pre-pandemic distribution, $\chi^2(2, N = 393) = 93.97$, $p < .001$, with a large effect size (Cramér's $V = .49$). The corresponding test for online grocery applications was also significant, $\chi^2(2, N = 211) = 47.01$, $p < .001$, Cramér's $V = .47$. These results provide affirmative answers to RQ1 and RQ2: the pandemic period was associated with a significant and substantively large intensification of usage for both application types.

Table 3. Chi-Square Tests of Homogeneity: Usage Frequency Before Versus During COVID-19

Application	χ^2	df	p	Cramér's V	N
Food delivery	93.97	2	< .001	.49	393
Online grocery	47.01	2	< .001	.47	211

Note. Respondents with no experience of the relevant application type were excluded, and the two highest usage categories were collapsed into “3 or more times a week” to satisfy expected-cell-count assumptions. N reflects the pooled before/during observations entering each test.

3.3 Motivations for Increased Usage (RQ3)

As shown in Table 4 and Figure 2, the primary self-reported driver of increased usage across both application types was convenience, which outranked the pandemic-specific factors of social distancing and infection concerns. For food delivery applications, 54.0% of respondents cited convenience as the main reason for their increased usage, compared with 21.0% citing social distancing and 20.5% citing infection concerns. For online grocery applications, convenience (33.5%) likewise dominated social distancing (9.5%) and infection concerns (6.5%), although half the sample (50.5%) reported no increase in usage or no experience, consistent with the lower overall penetration of this category.

Table 4. *Primary Motivations for Increased Usage and Post-Pandemic Usage Intention (N = 200)*

Variable	Category	n	%
Reason for increased food delivery usage	Convenience	108	54.0
	Social distancing	42	21.0
	Infection concerns	41	20.5
	Others / no increased usage	9	4.5
Reason for increased online grocery usage	Convenience	67	33.5
	Social distancing	19	9.5
	Infection concerns	13	6.5
	Others / no increased usage	101	50.5
Post-COVID-19 usage intention	Continue food delivery only	84	42.0
	Continue both food delivery and grocery	77	38.5
	Not sure	24	12.0
	Discontinue / grocery only	15	7.5

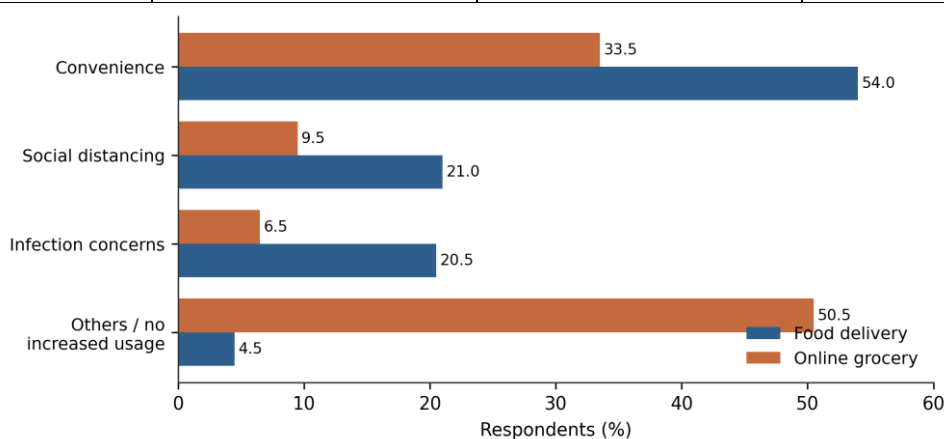


Figure 2. Primary self-reported motivation for increased application usage during COVID-19 (N = 200).

3.4 Post-Pandemic Continuance Intention (RQ4)

Figure 3 summarizes respondents' intended behaviour after the pandemic. A combined 80.5% of respondents indicated an intention to continue using at least one form of delivery application after COVID-19 subsides—42.0% intending to continue with food delivery applications only and 38.5% intending to continue with both food delivery and grocery applications. Only 7.5% indicated they would discontinue delivery applications entirely or retain grocery applications alone, while 12.0% were undecided. These findings answer RQ4 and signal strong prospects for the permanent adoption of pandemic-era digital consumption habits.

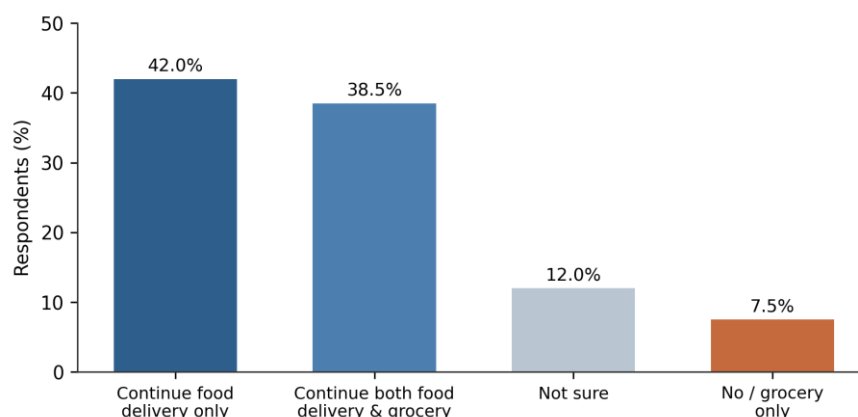


Figure 3. Intended application usage after the COVID-19 pandemic (N = 200).

3.5 Key Findings

This study set out to quantify how the COVID-19 pandemic altered South Korean consumers' use of food delivery and online grocery applications and to identify the motivations behind, and likely persistence of, those changes. Three findings stand out. First, usage frequency intensified significantly and substantially for both application types, with the share of heavy users (three or more orders per week) of food delivery applications increasing more than fivefold. Second, convenience—not fear of infection or compliance with distancing rules—was the motivation consumers most often attributed to their increased usage. Third, more than four in five respondents intend to continue using these platforms after the pandemic.

3.6 Theoretical Implications

The findings contribute to the literature on crisis-induced consumer behaviour change in three ways. First, they provide inferentially tested evidence, from a market with an already mature delivery ecosystem, that the pandemic produced a step change in usage intensity rather than merely first-time adoption. This complements demand-side evidence from Taiwan [20] and channel-preference evidence from the United States [21] by documenting the within-category intensification of use in South Korea.

Second, the primacy of convenience among self-reported motivations supports the theoretical account in which crises act as forced trials that reshape habits [2]. Pandemic-related anxieties and mandates plausibly served as the initial catalyst pushing consumers onto the platforms, but the experience of use then revealed the platforms' inherent utilitarian value, which consumers subsequently cited as their principal reason for sustained and increased usage. This sequence is consistent with the stimulus–organism–response account of early-pandemic behaviour [19] transitioning into the habit- and performance-driven continuance documented in the technology acceptance literature [10, 14]. It also aligns with evidence that the determinants of usage intention shifted between the pre-pandemic and pandemic periods [8].

Third, the high continuance intention observed here (80.5%) extends the argument that pandemic-accelerated digital consumption habits are 'sticky' [2] to the dual context of prepared-food and grocery delivery, while the large share of grocery non-users highlights that the two categories occupy different stages of the diffusion curve and should not be treated as interchangeable in future modelling.

3.7 Practical Implications

For delivery enterprises, the strategic focus must now shift from pandemic-driven acquisition to convenience-driven retention. Because convenience is the value consumers themselves foreground, platforms should continue to compress friction across the entire journey—ordering, payment, tracking, and delivery speed—rather than relying on the inertia of pandemic-era habits. Investments in AI-driven personalization, enhanced cold-chain logistics, subscription models, and automated delivery are consistent with this imperative [1, 14]. The substantial proportion of respondents who remained non-users of online grocery applications (46.5% even during the pandemic) indicates that this category, unlike food delivery, still offers meaningful acquisition opportunities; targeted onboarding incentives and trust-building measures around product freshness may help

convert this segment [20, 21]. Finally, the 12.0% of undecided respondents represent a retention battleground: loyalty programs and switching-cost mechanisms deployed before consumption patterns fully renormalize are most likely to tip this group toward continued use [10].

4. CONCLUSION

The COVID-19 pandemic materially altered consumer behaviour in South Korea. This study documents a sharp, statistically significant escalation in the frequency of food delivery and online grocery application usage relative to pre-pandemic baselines, identifies convenience as the dominant motivation superseding immediate health concerns, and finds that a large majority of users intend to continue using these digital platforms in a post-pandemic environment. Taken together, the results indicate that the pandemic functioned less as a temporary demand shock than as a catalyst of durable behavioural adoption in the digital food economy.

4.1 Limitations and Future Research

The findings should be interpreted in light of several limitations. First, the study relied on respondents' retrospective recall to reconstruct pre-pandemic behaviour within a single questionnaire, which may introduce memory bias; longitudinal panel designs would allow paired, within-person tests of change rather than the comparison of marginal distributions employed here. Second, the sample of 200 respondents was recruited through university-affiliated channels and social media, producing a convenience sample dominated by women and by adults aged 18–23; generalization to older consumers and to the broader Korean population should therefore be made with caution, particularly given evidence of generational differences in pandemic-era shopping responses [3]. Third, motivations were measured with a single forced-choice item; future research should employ validated multi-item scales and model the relationships between motivations, satisfaction, habit, and continuance intention using structural approaches [10, 14]. Finally, future studies should track whether the continuance intentions reported here translate into actual post-pandemic behaviour, and should investigate emerging retention strategies—such as subscription models, drone or robotic delivery, and personalization—to understand how firms can sustain pandemic-accelerated growth in a fully reopened economy.

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CONFLICT OF INTEREST

The author declares no conflict of interest.

ETHICS STATEMENT

As informed consent was obtained from all participants prior to data collection. Each participant voluntarily agreed to share their personal information with a clear understanding that the data would be used exclusively for research purposes. Participants were also explicitly informed that their responses would be collected anonymously, ensuring that no personally identifiable information would be linked to the data. Given these protections, the study adheres to ethical guidelines while safeguarding participant privacy and confidentiality.

DATA AVAILABILITY STATEMENT

The data supporting the findings of this study are available from the corresponding author upon reasonable request.

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