

## Implementation of pharmacy delivery services in the era of digital and pandemic Covid-19

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### ABSTRACT

The Covid-19 pandemic has had a significant impact on changes in people's behavior which currently prefer online ordering in order to implement social distancing and physical distancing. This study aims to see the behavior of pharmacy customers in using delivery services during the pandemic and strategies that can be used to attract customers to return to using delivery service. This study is an observational analytic study conducted at CV. Apotek Keluarga in the period October-December 2020. A total of 149 respondents were involved in this study. Customer behavior was observed by collecting information from customers as well as profiles of requests for delivery services from January to August 2020. Analysis of strategies to attract customer interest in shopping again at the pharmacy was carried out by looking at the correlation of the factors that influence the intention to return through distributing questionnaires. The demand profile for delivery services shows an increase in demand during pandemic in March 2020 from 22.92% to 94.35%. The results of the bivariate analysis show that there is a significant correlation on each variable score for trust, checkout satisfaction, after-delivery satisfaction, and price perception on the intention to return. The results of the multivariate analysis show that the variables, independently correlated with intention to return were trust variables with a weak positive correlation coefficient ( $r = 0.210$ ), after-delivery satisfaction with sufficient positive correlation coefficient ( $r = 0.306$ ), and price perception with sufficient positive correlation coefficient ( $0.434$ ). Based on the results of this study, it can be concluded that the application of delivery services at pharmacies has the opportunity to be applied during the Covid-19 pandemic period as well as after the pandemic. Pharmacies need to build trust, satisfaction, and good price perceptions for customers to attract customers to return to using home delivery at pharmacies.

**Keywords:** Covid-19, pandemic, pharmacy, delivery service, intention to return

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## INTRODUCTION

Various changes have occurred in the world of health during the Covid-19 pandemic which has claimed up to two million lives in the world (WHO, 2020). Physical and social distancing appeals since the Covid-19 pandemic have also contributed to changes in people's actions, beginning with changes in market patterns of engagement, meeting needs, and lifestyle. Various methods have been developed to maximize health services and minimize interactions between patients and health workers amid the Covid-19 pandemic. In the trade sector, many entrepreneurs have started to switch to selling via online media (e-commerce) in order to continue getting the customers who are urged to limit movement to public places and crowds. Therefore, the application of e-pharmacy is an attractive model in pharmacy system innovation because it can provide benefits such as ease of transactions, price transparency, saving time with delivery services, and in anticipation of facing public panic during the Covid-19 pandemic (Singh et al., 2020).

Some countries, such as China, have begun to implement remote pharmacy services in the form of electronic prescriptions, consultation through electronic media, and drug delivery services to reduce the occurrence of transmission of the coronavirus from one person to another (Liu et al., 2020). Several pharmacies in the Netherlands have also implemented drug delivery directly to patients' homes to reduce patient interactions with health workers (Koster et al., 2020). In Indonesia, several large pharmacies, such as Apotek Kimia Farma, Apotek K24, and online pharmacy platforms that involve third parties have also implemented e-pharmacy. Thus, customers do not need to directly visit pharmacies. However, the use of e-pharmacy was not generally embraced by medium and small pharmacies during the Covid-19 pandemic.

A previous study showed that the application of e-pharmacy in the pharmacy business is able to have a positive effect in the form of an increase in sales turnover at pharmacies (Mukaddas et al., 2020). Moreover, an analysis of the promotion strategy at a pharmacy in Karawang suggests that the application of home delivery is an appropriate business strategy to increase pharmacy promotion (Wijayanti et al., 2019). In fact, implementing an online ordering system and home delivery requires adequate infrastructure investment costs, such as web portal procurement costs, employee needs, and delivery capacity (Hobbs, 2020). Furthermore, drug distribution is also strictly regulated by regulations of the National Food and Drug Agency (*Badan Pengawas Obat dan Makanan*, abbreviated as BPOM) governing drug distribution online (BPOM, 2020). Hence, the existence of more advantages in terms of business and strategies that might be done to attract customers can be a factor for owners of pharmacy facilities being interested in implementing a home delivery system in pharmacies.

Online drug ordering systems are not impossible to do along with technological developments that create a new culture, namely shopping from home. This study aims to determine the prospects for implementing an online drug ordering system and home delivery in pharmacies, especially during the Covid-19 pandemic. This study provided an overview of consumer behavior in using home delivery services as well as strategies that can be used to attract customers to return to using online ordering services and home delivery. The findings of this study can be a consideration for pharmacies to implement direct delivery services in the digital era and during the Covid-19 pandemic. Furthermore, this study was also expected to provide benefits and contributions to the scientific field as a reference in developing science in the field of pharmaceutical management.

## METHOD

This study is an observational analytic study that analyzed quantitatively. The research data consisted of primary data and secondary data. Primary data were obtained from the online questionnaires filled out by respondents through google form with the study design used was a cross-sectional design. Secondary data were obtained from pharmacy databases to obtain data on the number of delivery order requests from January to August 2020. This study was conducted at CV. Apotek Keluarga Pekanbaru in the October-December 2020 period and has obtained an ethical approval license from Health Research Ethics Committee STIKes Payung Negeri number 0062/STIKES PN/KEPK/X/2021.

The sampling technique used to obtain primary data was carried out using purposive sampling technique on pharmacy customers as respondents with inclusion criteria such as 18 years old and above, at least high school graduates, had used a pharmacy delivery order service, and willing to participate in the study by agreeing to informed consent. A minimum of 120 respondents who met the inclusion criteria had to be achieved in this study so that it could be processed statistically.

**Table 1. Items per dimension on the research questionnaire**

| <b>Trust</b>  | <b>Price perception</b>   |
|---|---|
| <ul style="list-style-type: none"> <li>• I believe the pharmacy has the license of the Pharmacy and the Responsible Pharmacist.</li> <li>• I believe the Pharmacists and/or Pharmacist assistants provide correct drug information to customers.</li> <li>• I believe Pharmacy employees have a good knowledge of medicine.</li> <li>• I believe that the pharmacy has complete pharmaceutical service support facilities.</li> <li>• I believe that the pharmacy has complete and varied medicinal products.</li> <li>• I believe that the pharmacy sells safe and qualified drugs.</li> </ul> <p><b><u>At-checkout satisfaction</u></b></p> <ul style="list-style-type: none"> <li>• Customer requests are responded to and processed quickly.</li> <li>• Information on the price and availability of drugs is clear.</li> <li>• Pharmacy employees convey confirmation of orders correctly.</li> <li>• The payment method makes it easy for customers.</li> <li>• Ordering drugs online is easy to do.</li> <li>• Ordering drugs online is very helpful in times of the current Covid-19 pandemic.</li> </ul> <p><b><u>After-delivery satisfaction</u></b></p> <ul style="list-style-type: none"> <li>• Drug delivery is according to the promised time.</li> <li>• Drivers are friendly and polite.</li> <li>• Drug delivery is accompanied by proof of payment from the pharmacy.</li> <li>• The medicine is delivered as ordered.</li> <li>• I am satisfied with the transaction using drug delivery services.               <ul style="list-style-type: none"> <li>• I feel safe making transactions using drug delivery services.</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• Drug prices are relatively reasonable compared to other pharmacies.</li> <li>• The price of drugs offered is in accordance with the services provided.</li> <li>• Shipping costs are relatively reasonable compared to other delivery services.</li> <li>• Shipping costs offered are in accordance with the service provided.</li> <li>• Free shipping promo might interest me to use delivery services.</li> <li>• Discount shipping promo might interest me to use delivery services.</li> </ul> <p><b><u>Intention to return</u></b></p> <ul style="list-style-type: none"> <li>• I have the desire to return to using drug delivery services.</li> <li>• I will use a drug delivery service even though the pandemic outbreak has ended.</li> <li>• I will recommend drug delivery services to friends or relatives.</li> <li>• I will give a positive impression about drug delivery services to others.</li> <li>• I will use a drug delivery service as long as the shipping costs are reasonable according to the distance</li> <li>• I would find it helpful if the pharmacy continues to implement drug delivery services.</li> </ul> |

The research instrument used was a questionnaire in Bahasa designed directly by the researchers consisting of a trust level questionnaire, a satisfaction level questionnaire (at-checkout satisfaction and after delivery satisfaction), a price perception questionnaire, and an intention to return questionnaire (Tabel 1). The development of questionnaire was carried out through literature study from previous studies which were then adapted to research needs. The assessment was carried out using a Likert scale which was divided into 6 scales with a score of 1-6. The validity and reliability of the research questionnaires have tested on the 36 respondents of Apotek Keluarga customers who were different from the research respondents. The validity testing was assessed through Pearson's correlation while the reliability testing was assessed using Cronbach's alpha ( $\alpha$ ) method. The results of the validity and

reliability test showed an acceptable correlation coefficient ( $r=0.413-0.918$ ) with a high-reliability value ( $\alpha=0.927$ ).

### Data Analysis

Data analysis was performed statistically and descriptively. Descriptive analysis was performed to see the profile of the number of delivery order requests during the Covid-19 pandemic. Statistical analysis was carried out to see the correlation between the level of trust, satisfaction level (at-checkout satisfaction and after delivery satisfaction), and price perception on the customers' willingness to reorder the drugs (intention to return). Hypothesis testing was carried out by multiple linear regression tests using the IBM SPSS Statistics 26 application.

## RESULT AND DISCUSSION

### Characteristics of respondents

In this study, there were 149 respondents who met the inclusion criteria. Respondents' characteristics data are presented in Table 2. Based on the respondents' characteristics data, it is known that 83.89% of respondents were in the productive age, namely 25-50 years old, which naturally have been familiar with the current technology. A total of 77.85% of respondents were women and 84.56% of respondents were graduates from higher education. Most of the respondents worked privately and some of the respondents (45.64%) had an income of more than five million rupiahs.

**Table 2. General characteristics of respondents**

| Variable   | Total (n = 149) | Percentage (%) |
|--|-----------------|----------------|
| <b>Age (years old)</b>                             |                 |                |
| 18-25 years old                                    | 11              | 7.38           |
| 25-50 years old                                    | 125             | 83.89          |
| >50 years old                                      | 13              | 8.72           |
| <b>Sex</b>   |                 |                |
| Male   | 33              | 22.15          |
| Female   | 116             | 77.85          |
| <b>Las Education</b>                               |                 |                |
| Senior High School/Vocational High School          | 23              | 15.44          |
| College  | 126             | 84.56          |
| <b>Occupation</b>                                  |                 |                |
| Civil Servant/Indonesian Soldier/Indonesian Police | 20              | 13.42          |
| Entrepreneur                                       | 40              | 26.85          |
| Student/College Student                            | 2               | 1.34           |
| Private Employee                                   | 28              | 18.79          |
| Unemployed   | 18              | 12.08          |
| And others   | 41              | 27.52          |
| <b>Income/Month</b>                                |                 |                |
| <1 million rupiahs                                 | 13              | 8.72           |
| 1-3 million rupiahs                                | 35              | 23.49          |
| 3-5 million rupiahs                                | 33              | 22.15          |
| >5 million rupiahs                                 | 68              | 45.64          |

### Behavior of respondents in using home delivery services

Based on the data listed in Table 3, most of the research respondents chose home delivery services because they were practical and saved more time. Furthermore, almost half of the total respondents chose to use home delivery services because they implemented social distancing and physical distancing during the Covid-19 pandemic. It can be seen that almost half of the number of respondents, namely 40.27% of respondents, have been used home delivery services during the Covid-19 pandemic.

The type of drugs ordered by the respondents consisted of prescription and non-prescription drugs. Only a small proportion of the total respondents ordered prescription drugs through home delivery services. Nearly half of all respondents (49.66%) ordered non-prescription drugs such as over-the-counter drugs, limited-free drugs, vitamins, and supplements that can be easily traded through home delivery services. Moreover, some of the respondents (46.31%) ordered prescription and non-prescription drugs through home delivery services.

**Table 3. Respondents' behavior as home delivery users**

| Variable   | Total (n = 149) | Percentage (%) |
|--|-----------------|----------------|
| <b>Visit to Pharmacy</b>   |                 |                |
| 1-3 times  | 82              | 55.03          |
| 3-6 times  | 22              | 14.77          |
| >7 times   | 45              | 30.20          |
| <b>The usage of medicine delivery service</b>  |                 |                |
| 1-3 times  | 85              | 57.05          |
| 3-6 times  | 35              | 23.49          |
| >7 times   | 29              | 19.46          |
| <b>The time of starting using medicine delivery service</b>  |                 |                |
| Before COVID-19 Pandemic   | 89              | 59.73          |
| During COVID-19 Pandemic   | 60              | 40.27          |
| <b>The reason of using medicine delivery service which is facilitated directly by the pharmacy</b> |                 |                |
| Practical and save more time   | 129             | 86.58          |
| Friend/family recommendation   | 14              | 9.40           |
| Safe and trusted   | 46              | 30.87          |
| Applying social distancing and physical distancing during COVID-19 Pandemic                        | 64              | 42.95          |
| <b>The type of medicine/product ordered</b>  |                 |                |
| Prescription drugs   | 6               | 4.03           |
| Non prescription drugs   | 74              | 49.66          |
| Prescription and non prescription drugs  | 69              | 46.31          |
| <b>Drugs delivery service preferred</b>  |                 |                |
| The medicine delivery service that is facilitated directly by the pharmacy                         | 145             | 97.32          |
| Medicine delivery service that is facilitated by the third party                                   | 4               | 2.68           |

The results also showed that almost all respondents, namely 97.32%, preferred direct drug delivery services facilitated by pharmacies compared to drug delivery services facilitated by third parties. This is reasonable since a previous study suggests that legal protection for consumers in online application-based health services or third parties provided by application companies is only limited to the responsibility for using the application (Listianingrum et al., 2019). Online applications can avoid any dispute if there is negligence in health services that is detrimental to consumers for the application company is legally only liaison between consumers and health service providers, namely partners of the application company (Listianingrum et al., 2019).

Furthermore, the security of patient information and the correctness of products being traded can be a factor for customers not trusting them to order drugs through online applications at third parties. In this case, the pharmacy needs to build customer trust through the suitability of the implementation of online drugs purchase by the pharmacy with the conditions required by the government. Legal protection is needed to guarantee consumer rights when ordering drugs through online applications by third parties because customers do not have direct contact with drug-providing pharmacies (Hijawati, 2020; Juwanti & Tilov, 2018).

### Demand profile for home delivery services during the Covid-19 pandemic

It is commonly known that the first pneumonia case caused by Covid-19 was reported to have occurred at the end of 2019 in Wuhan (World Health Organization, 2019). The development of the spread of Covid-19 was very significant from 31 December 2019 to 25 March 2020, in which more than 414,179 confirmed cases spread across 197 countries with a death rate of 18,440 caused by Covid-19 infection (Baloch et al., 2020).

WHO declared that every country is required to carry out tracing of Covid-19 cases, isolate, conduct checks, treat, and most importantly prevent the transmission of Covid-19 in the community (World Health Organization, 2020). The implementation of home quarantine, social distancing, physical distancing, and diligently washing hands with soap are some steps to prevent the spread of Covid-19 (Lotfi et al., 2020). If the Covid-19 case does not decrease significantly, there is a possibility that social distancing might continue until 2022 (Lotfi et al., 2020).

The impact of the Covid-19 pandemic was seen with an increase in demand for home delivery services at pharmacies in March 2020 with an increase from 22.92% to 94.35% from the previous month. This increase occurred right at the time WHO declared Covid-19 a pandemic on March 11, 2020 (Cucinotta & Vanelli, 2020). Figure 1 presents the increase that has occurred starting from January 2020 which peaked in March 2020. The profile of the number of home delivery requests then declined in May and did not experience significant changes until August 2020. However, the number of requests for home delivery during the pandemic was still higher compared to before the pandemic period, to be precise in January and February 2020. This indicates that home delivery service has the opportunity to be implemented (Nadeem et al., 2021) in pharmacies as a strategy to increase pharmacy sales during the Covid-19 pandemic, which is supported by recent rapid technological developments.

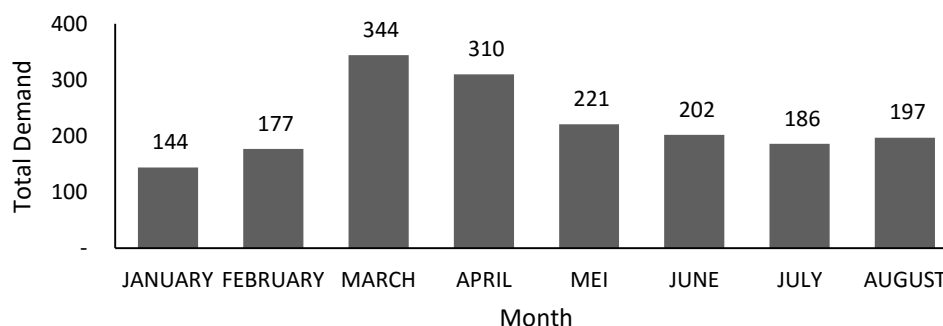


Figure 1. Profile of requests for home delivery orders for the January to August 2020 period

### Strategies to attract customers to return to using home delivery services at pharmacies

The implementation of home delivery service is one of the business strategies that can be applied to increase promotion at pharmacies (Wijayanti et al., 2019). A try-out of the web-based drug sales system at pharmacies has also been proven to provide satisfaction with 77.1 percent of respondents involved in the research (Gaszella & Amin, 2018). Besides, the use of the internet and social media has been proven to help pharmacists in conveying drug information to patients (Juwita et al., 2020). Pharmacists are considered to be able and ready to provide pharmaceutical services with an e-pharmacy model in the future (Heryanto, 2020). The results of previous studies indicate that changes in the drug transaction model at pharmacies through online ordering with home delivery facilities are very likely to be implemented nowadays.

The implementation of home delivery services provided many benefits for customers and patients during the Covid-19 pandemic (Bejarano et al., 2020). The implementation of home delivery also provides benefits to pharmacies. Hence, they can still reach customers who are urged to implement social and physical distancing. Therefore, pharmacies need to implement strategies that can retain customers to reorder the drugs (intention to return) online with home delivery services provided by pharmacies.

Some of the factors analyzed in this study as factors that might influence customers' intention to return in using home delivery services provided by pharmacies are aspects of customer trust, customer satisfaction during the order process (at-checkout satisfaction), and the process of delivering drugs to customers (after delivery satisfaction), as well as the aspect of customer perception of the price set in the home delivery service. The items that determine each variable are presented in Table 1. The positive correlation of each dimension to the intention to return shows that there is a correlation between these variables which might affect the customers' desire to purchase at the pharmacy again.

A correlation test with bivariate analysis shows that the correlation between the variable scores of trusts, checkout satisfaction, after delivery satisfaction, and price perception on the intention to return is significant. The Spearman correlation value shows a positive correlation with a strong correlation strength as listed in Table 4. Therefore, each variable might have an influence on customer desire to repurchase using home delivery services provided by the pharmacy.

**Table 4. The results of bivariate and multivariate analysis tests with linear regression on the intention to return (n=149)**

| Variable                           | Regression Coefficient | Correlation Coefficient | t count | p     |
|------------------------------------|------------------------|-------------------------|---------|-------|
| <b>Bivariate Analysis</b>          |                        |                         |         |       |
| <i>Trust</i>                       |                        | 0.622                   |         | 0.000 |
| <i>At-checkout satisfaction</i>    |                        | 0.679                   |         | 0.000 |
| <i>After delivery satisfaction</i> |                        | 0.726                   |         | 0.000 |
| <i>Price perception</i>            |                        | 0.752                   |         | 0.000 |
| <b>Multivariate Analysis</b>       |                        |                         |         |       |
| Constant                           | 2.401                  |                         |         |       |
| <i>Trust</i>                       | 0.211                  | 0.210                   | 3.238   | 0.001 |
| <i>After delivery satisfaction</i> | 0.279                  | 0.306                   | 4.259   | 0.000 |
| <i>Price perception</i>            | 0.443                  | 0.434                   | 6.981   | 0.000 |
| F count                            | 107.096                |                         |         | 0,000 |
| R Square                           | 0.689                  |                         |         |       |

Previous studies show that providing drug information and service quality from pharmacy employees to customers is able to provide the highest satisfaction for customers compared to other dimensions (Akhmad et al., 2019; Narendra et al., 2017; Putri & Kautsar, 2018). The findings of those studies support this study, that the existence of customer satisfaction will attract customers to buy back at the pharmacy. Another study shows that price promotions are also proven to influence consumer

purchasing decisions according to a study conducted on consumers of PT. Shopee International Indonesia (Tulangow et al., 2019). Shopee's "Free Shipping" tagline has its appeal and has a strong influence on consumer decisions to choose to shop on that e-commerce platform (Dhaneswara, 2019). Customer perceptions of prices, both drug prices and shipping costs, are one of the factors that can determine customer choice in using home delivery services because prices affect customer loyalty (Nalendra, 2018).

Advanced analysis test with multivariate analysis using linear regression shows that the variables that were independently correlated with the intention to return of pharmacy customers were the trust with a weak positive correlation coefficient ( $r=0.210$ ), after delivery satisfaction with sufficient positive correlation coefficient ( $r=0.306$ ), and price perception with a sufficiently positive correlation coefficient (0.434). The at-checkout satisfaction variable was not independently correlated with intention to return. Therefore, each item contained in the variables of trust, after delivery satisfaction, and price perception can be applied as a strategic step to attract customer interest to persuade them to repurchase the drugs at the pharmacy by using home delivery service.

The challenge that arises in the application of home delivery service is how the pharmacy can still maintain the quality of pharmaceutical services by pharmacists through the use of information technology media since customers do not directly visit the pharmacy. Studies prove that customer trust and satisfaction affect the loyalty of customers who visit and receive pharmaceutical services directly at a pharmacy (Dewi & Suprapti, 2018; Putri, 2017). It means that pharmacies are required to continue to strive to build customer trust through the implementation of online pharmaceutical services following the Technical Guidelines for Pharmaceutical Service Standards at the Pharmacy (Kemenkes RI, 2019). Support from the government will also be very much needed so that pharmacists can slowly implement a remote pharmacy system for customers, especially during the covid-19 pandemic. The government can facilitate applications that are integrated with all pharmacies to make it easier for customers and increase customer trust to order drugs through the delivery system at the pharmacy. Therefore, there is a need for innovations by pharmacies in order to build trust and satisfaction from customers who do not directly visit pharmacies, namely customers who order drugs online by utilizing home delivery service.

### **Study Limitation**

This study shows a comparative relationship of each variable to intention to return but unable to explain causal relationship consequence. Research needs to be done with using a prospective cohort design to examine the cause-and-effect relationship by implementing the real case for each variable needed.

### **CONCLUSION**

The Covid-19 pandemic caused changes in consumer behavior in ordering medicines at pharmacies as evidenced by an increase in the number of requests for home delivery services in March 2020 with an increase of almost twofold from the previous month. The number of requests for home delivery continues to increase during the pandemic period compared to the number of requests before the pandemic. Pharmacies need to implement strategies to attract customers to persuade them to repurchase at the pharmacies using online ordering and home delivery services especially during the pandemic period. The strategy that can be implemented is to build trust, satisfaction, and a good price perception towards customers to increase customer loyalty in using home delivery service provided by the pharmacies.

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