Trends in China's pharmaceutical market during the COVID-19 epidemic

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Abstract. The COVID-19 epidemic has had a significant impact on the Chinese pharmaceutical market, leading to substantial changes in demand, production, supply, and market size. This study aims to analyze the impact on the Chinese pharmaceutical market by examining the evolving market trends during the COVID-19 epidemic. Through relevant literature and data, the following conclusions are drawn: the Chinese pharmaceutical market has undergone significant changes in demand, production, supply, price, and scale due to the epidemic. These factors not only posed considerable challenges to the Chinese pharmaceutical market during the epidemic, prompting the government and enterprises to implement a series of policies to overcome these difficulties, but also presented opportunities and challenges for the development of the Chinese pharmaceutical market. Based on the above analyses, this paper proposes some innovations and suggestions, for example the government should put forward some policies to manage market price fluctuations in some special period, and the state should also cultivate and introduce more innovative talents to help the country innovate in science and technology.

1 Introduction

In December 2019, unexplained pneumonia was first reported in Wuhan, Hubei Province, China, causing national concern and worry. On January 7, 2020, China identified a novel coronavirus as the causative agent of the outbreak and began notifying the World Health Organization (WHO). As one of the largest pharmaceutical markets in the world, China has also faced tremendous changes and challenges during this outbreak. China's pharmaceutical market has exhibited different trends in the nearly three years since the outbreak developed.

This paper will analyze the impact of the COVID-19 epidemic on the Chinese pharmaceutical market and its changing trends. The study aims to analyze the changing trends in China's pharmaceutical market during the COVID-19 epidemic, providing a scientific basis and practical experience for the development of the pharmaceutical industry. Moreover, it aims to offer targeted references and decision-making support for the government, industry, and enterprises.

The rest of the paper is arranged as follows: the second part analyzes the impact of the COVID-19 epidemic on the Chinese pharmaceutical market in terms of demand, production, supply, and price changes. The third part examines the trends of the Chinese pharmaceutical market during the epidemic, focusing on market size, product structure, and scientific and technological innovation in pharmaceuticals. The fourth part is the conclusion, which mainly summarizes the key points of the second and third parts and puts forward some views and suggestions.

2 Impact of the Covid-19 epidemic on the Chinese pharmaceutical market

2.1 Impact of the epidemic on demand for pharmaceuticals

The outbreak of the epidemic resulted in many people getting infected, causing the demand for healthcare resources to skyrocket. The epidemic has led to a significant increase in the demand for pharmaceuticals, healthcare, and medicines. Medical supplies such as masks, disinfectants, and protective clothing were in short supply, leading to a tight supply of medical equipment and drugs. According to statistics, the resumption rate of factories across the country under the impact of the epidemic was 70%, and not considering the less affected primary industry, the demand for masks reached 390 million per day based on the calculation that each person in the country used one mask per day [1]. During the epidemic, the transaction value of supplies related to epidemic prevention and protection sold through the Internet increased dozens of times [2]. In addition, the epidemic triggered a focus on immune system strengthening and health maintenance, increasing the demand for nutraceuticals and healthy foods. Increased awareness of prevention and control among the population has also boosted traffic in pharmacies and healthcare facilities.

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2.2 Impact of the epidemic on pharmaceutical production and supply

The outbreak had a significant impact on pharmaceutical production and supply chains. Due to the widespread spread of the outbreak and China's policy on controlling the outbreak, which required controlling the movement of people, many pharmaceutical companies' production lines and factories were forced to shut down or reduce their production. During this period, about 37 pharmaceutical factories producing active ingredients in China were closed down [3]. This leading to a decrease in production capacity and a shortage of pharmaceutical products. At the same time, the transport of raw materials and medicines needed by the pharmaceutical factories was obstructed due to the isolation of people and restrictions on traffic control during the epidemic, further causing tensions in the supply chain. This left hospitals and patients facing difficulties in obtaining medicines.

As time passed and the epidemic was controlled, pharmaceutical production gradually returned to normal, with many companies implementing preventive and control measures, resuming production lines, and increasing production to meet market demand. In mid-to-late February 2020, several companies switched production to address tight supplies. Despite a reduction in the number of production days compared to the previous month, the production of masks and medical masks still increased by 2.9 times and 3.5 times year-on-year. Additionally, the output of disinfection products such as alcohol, medical instruments, and equipment like forehead thermometers increased by more than 15% [4].

Simultaneously, banks and the government took a series of measures, such as expanding financial support for the production of medical supplies to help enterprises through difficult times. On January 31, 2020, the People's Bank of China (PBOC) issued an emergency notice to provide loans of 300 billion yuan to enterprises directly involved in the production, transport, and sale of crucial epidemic prevention medical and living supplies [5]. At the same time, based on the unique refinancing project provided by the PBOC, the Central Finance and Economics Commission (CFEC) issued a specific refinancing program aligned with the bank's policy on the production of medical supplies. Moreover, the People's Bank of China provides a particular refinancing program, offering a central financial rate of 50% to provide interest support for enterprises supporting epidemic prevention and control work in pharmaceutical products and medical equipment. After confirmation and audit by provincial financial departments, companies can apply for interest support [6].

2.3 Impact of the epidemic on pharmaceutical prices

Firstly, the prices of some medicines and medical resources have skyrocketed due to surges in demand and shortages in supply. Particularly at the beginning of the outbreak, the demand for such medicines and resources increased dramatically throughout the country, and the scarcity of the products needed was attributed to the shortage of raw materials, the limited production capacity of pharmaceutical companies, and transport difficulties. As a result, suppliers were forced to raise prices to meet market demand, leading to a spike in the price of some scarce materials. In the early stage of the outbreak, the prices of heat-clearing and detoxifying herbs rose due to the surge in demand, with the price of honeysuckle rising from RMB 180 to RMB 240, Panax quinquefolium from RMB 15 to RMB 25, forsythia from RMB 53 to RMB 68, and Scutellaria baicalensis from RMB 22 to RMB 28 in a short period (please see Figure 1) [7]. The increase in the price of these raw materials led to a simultaneous increase in the price of medicines.

![Fig. 1. Changes in the price of medicinal materials before and after the outbreak of the epidemic](https://baijiahao.baidu.com/s?id=1776661990635756312&wfr=spider&for=pc)

Data source: https://baijiahao.baidu.com/s?id=1776661990635756312&wfr=spider&for=pc

Photo credit: Original
Prices of pharmaceutical products have gradually stabilized as the epidemic has been brought under control, the supply of medicines has stabilized, and the state has implemented price control measures to limit the extent of price increases. The government and the state's efforts to regulate the market and maintain social stability, along with controlling the extent of price increases, and the increased production capacity, and more efficient transport and supply chain management measures taken by pharmaceutical manufacturers and suppliers have helped balance supply and demand. This has led to a gradual return to normalized prices for pharmaceutical products.

3 Changing trends in China's pharmaceutical market

3.1 Trends in the size of the pharmaceutical market

During the COVID-19 epidemic, China's pharmaceutical market size exhibited a significant growth trend. The outbreak of the epidemic led to a higher demand for healthcare, resulting in a surge in demand for medicines, medical devices, protective gear, and even immune-boosting products such as health supplements. Since the beginning of 2020, the market size of China's mask industry has experienced explosive growth, reaching 244.416 billion yuan, an increase of nearly 400 times compared to 2019. As the epidemic is almost over in 2022, the market size of China's mask industry is projected to be about 65.25 billion yuan (please see Figure 2) [8].

![Fig. 2. The scale of China's mask industry from 2019 to 2022](https://www.chinabaogao.com/baogao/202303/627420.html)

Data source: https://www.chinabaogao.com/baogao/202303/627420.html
Photo credit: Original

3.2 Trends in the restructuring of pharmaceutical product mix

After the outbreak of COVID-19, the demand for antipyretics, antivirals, and other medicines to protect against COVID-19 viruses increased, and research and development of new products, such as vaccines, were emphasized. Simultaneously, the demand for respiratory-related drugs surged during the outbreak. As the COVID-19 virus primarily spreads through the respiratory tract and significantly impacts the respiratory system, the supply and demand for respiratory-related drugs, such as antiviral drugs, anti-infective drugs, and bronchodilators, were strained. Pharmaceutical companies increased the productivity of such drugs to meet market demand.

3.3 Changing trends in pharmaceutical science and technology innovation

During the COVID-19 epidemic, pharmaceutical science and technology innovation received further impetus and attention. Significant breakthroughs were made in developing new vaccines and other innovations in medical technology. Research institutes and pharmaceutical companies nationwide intensified their R&D efforts, ushering in a new chapter in medical research. According to the progress of global COVID-19 vaccine research and development published in the Nature Journal's sub-issue "Nature Reviews: Drug Discovery" in April 2020, a total of 19 countries or regions around the world were involved in vaccine research and development, with a total of 115 Covid-19 vaccines in the pipeline, while China alone accounted for 14 R&D teams. As of May 2022, 34 Covid-19 vaccines have been approved for clinical trials in China [9]. Overall, the development of COVID-19 vaccines in China is at the forefront of the world.

At the same time, the application of technologies such as artificial intelligence and big data has become increasingly widespread. The development of artificial intelligence is rapid and has a significant influence on
the field of chemical medicine. The influence of artificial intelligence on medicine is mainly divided into two directions: traditional Chinese medicine and modern Western medicine. Currently, some negative public opinion in society has created a particular obstacle to the development of Chinese medicine. However, if researchers can combine artificial intelligence and Chinese medicine through artificial intelligence to assist in the actual application of Chinese medicine, the judgment and processing of Chinese medicine become more credible, which will be of great significance to the development of Chinese medicine. In terms of Western modern medicine, artificial intelligence, after deep learning, can accurately feature learning by deep convolutional neural networks to identify specific targets of a given image. For example, the COVID-19 pneumonia AI evaluation system can accurately analyze CT images, which significantly contributed to the epidemic. In this regard, AI relies on powerful logical analysis capabilities that can identify omissions and flaws in human research [10].

Big data analytics can provide vast medical data to support decision-making and innovation. Applying these technologies not only accelerates the speed of pharmaceutical R&D but also improves the quality and accuracy of the results.

4 Conclusion

During the COVID-19 outbreak, the Chinese pharmaceutical market experienced dramatic changes. The COVID-19 virus significantly increased the demand for protective gear and medicines, and uncertainties such as the need for factories to shut down after the outbreak led to a lack of supply in the market, affecting prices in the Chinese pharmaceutical market. These changes created a series of challenges and opportunities for the Chinese pharmaceutical market, necessitating pharmaceutical companies and the government to strengthen cooperation and develop targeted policies and strategies to cope with the changes brought about by the outbreak.

During the COVID-19 epidemic, the Chinese pharmaceutical market also underwent significant trends. These changes were reflected in alterations to the size of the pharmaceutical market, shifts in the structure of pharmaceutical products, and changes in pharmaceutical science and technology innovation. The surge in demand for medical drugs and protective products led to a clear growth trend in the size of the Chinese pharmaceutical market during this period. Additionally, it resulted in dramatic changes in the structure of medical products on the market.

Simultaneously, with the development of the epidemic over time, the Chinese pharmaceutical market has implemented a series of innovations, such as research on the COVID-19 vaccine, providing a reference for the future development of the Chinese pharmaceutical market. Pharmaceutical companies need innovative thinking and keen insight to seize market opportunities, address market challenges, and continually adjust their strategies to promote the sustainable development of the pharmaceutical market.

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