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Problems and Solutions in Chinese Pharmaceutical Industry

Xueyi Zhu *

Business School, University of Nottingham Ningbo China, Ningbo, China

* Corresponding Author Email: biyxz66@nottingham.edu.cn

Abstract. The Chinese pharmaceutical industry plays an important role in the Chinese society. With the aging of the population and the improvement of residents' health awareness, it has become a key area to ensure public health and improve the quality of life. In addition, it also contributes to the steady development of Chinese economy, increasing a lot of employment opportunities and promoting scientific and technological innovation. Through the improvement of self-sufficiency in China's pharmaceutical industry, the industry has not reduced its foreign dependence, but increased China's international influence as well. However, it also brings about a series of problems. This study will explain the problems in the pharmaceutical industry from four perspectives of generic drugs, innovation ability, medical insurance payment and supply chain. This paper will review the past and current situation of Chinese pharmaceutical industry through the problems and express the future expectations for the industry. According to these expectations, the relative countermeasures and suggestions will be put forward. This study is of great significance for the healthy development of the Chinese pharmaceutical industry.

Keywords: Chinese pharmaceutical industry; Generic drugs; Innovation ability; Medical insurance payment; Supply chain.

1. Introduction

The pharmaceutical industry plays an important role in today's modern society. Whether as the most basic health and safety field of the pharmaceutical industry, innovation field, economy field, and other fields, this industry is a significant part of it. For instance, the pharmaceutical industry is very important in delivering life-saving products/services to society [1]. Consequently, the pharmaceutical industry not only promotes the healthy development of individuals and the society, but also plays a positive role in promoting economic development, technological innovation and other aspects.

For China, the importance of the pharmaceutical industry is also self-evident. The pharmaceutical sector has become one of the most important industries promoted by the Chinese government and Five-Year Plan of China's Strategic Emerging sectors, mergers and acquisition [2]. It mainly reflects in the following aspects. From the perspective of health and safety, the core of Chinese pharmaceutical industry is to ensure the public health and safety of the society through the prevention, diagnosis and treatment of diseases. In terms of innovation, the pharmaceutical industry is an significant part of the high-tech field in China. Driven by cutting-edge science and technology such as biotechnology and genetic engineering, the industry continues to innovate to improve the medical level and life of the elderly. Additionally, from the perspective of economic development, the pharmaceutical industry is the economic pillar of China. On account of that it has created a large number of jobs, has increased the national GDP through imports and exports, and has promoted the development of related industries through some high value-added pharmaceutical products.

Since the development of traditional Chinese medicine, Chinese pharmaceutical industry began to transform modern medicine and began to step on the global stage. Chinese pharmaceutical industry continues to progress, and its scale is also gradually increasing. Figure 1 shows the market size change of the pharmaceutical market from 2016 to 2023.

Figure 1. Market size and growth rate.

At present, Chinese pharmaceutical industry has made breakthroughs in the development of innovative drugs and has promoted the continuous expansion of the overall scale of China's pharmaceutical industry, leading to China become the world's second largest pharmaceutical market. Because over the past decade, China's pharmaceutical industry has made drug innovation a top priority [3]. At the same time, it also has made outstanding contributions to public health. For example, during the COVID-19 period, China became the backbone of the global fight against the epidemic. Consequently, the influence of China in the international pharmaceutical market is growing gradually. However, there are still some problems in generic drugs, innovation ability, medicare payments, pharmaceutical supply chain and other aspects, and this study has showed an in-depth discussion of these problems and put forward targeted suggestions.

2. Problem

2.1. Serious Homogenization of Generic Drugs

Generic drugs refers to drugs that are substitutes for original brand-name drugs, containing the same active ingredients with the same quality, safety and efficacy [4]. Serious homogenization of generic drugs refers to the low market entry threshold of generic drugs, resulting in too many similar products in the market, the market tends to be saturated, and the competition is very fierce, leading to frequent price wars and shrinking profit margins.

Based on the report by Ni et al., repetitive applications of generic drugs without high technical innovation became a prominent issue in the current pharmaceutical industry in China [5]. This may cause generic drugs highly homogeneous. Therefore, pharmaceutical companies have adopted a low price strategy to acquire more market share. It also will have negative effects to patients because of its lower pharmaceutical costs. It not only has a negative impact on patients, but on enterprises, especially for small and medium-sized forms. When encountering the price war, they bear huge cost pressure, which is forcing them to reduce the investment in the production and development of drugs that affects the quality of drugs. Additionally, for enterprises, Serious homogenization of generic drugs will also lead to the market saturation of drugs. This means they will encounter sales and inventory pressures. Consequently, for this industry, seriously homogenized generic drugs may hinder the healthy development of Chinese drug industry. Furthermore, foe society, it also affects the healthy development of people's livelihood and the economic development.

2.2. Lack of Innovation Ability

Innovation ability refers to the ability to research and develop and innovate in original drugs. According to Wang and Zhou, in the pharmaceutical manufacturing industry, R&D activities play an important role in market competition [6]. Lack of innovation ability point that Chinese pharmaceutical companies and research institutions are relatively weak in making breakthroughs in the research and development of new drugs, and most of the new drugs developed in China are developed on the basis of the original drugs that have been listed abroad.

Due to the late start of China's modern pharmaceutical industry and the lack of long-term accumulated basic research and drug development experience, several key links in drug research and development are not mature enough. As a result of this reason, the firms are lack innovation and ability reasonably. It will cause a serious problem that drugs may need to rely on foreign imports, which probably limits the competitiveness of Chinese pharmaceutical industry in the global market. In terms of the research and development talents of the original research drugs, China lacks high-end scientific research talents with international vision and innovation ability. Therefore, the lack of talent reserve in Chinese pharmaceutical industry is also a major reason for the backward development of the innovation ability. The insufficient innovation capacity of Chinese pharmaceuticals will not hinder the development of the pharmaceutical industry, but also have a negative impact on public health. At the same time, China's lack of innovative pharmaceuticals will cause the pharmaceutical industry unable to have the high profits of patented drugs, limiting the overall economic growth of the industry.

2.3. Pressure of Medicare Payments

Medicare payment is to point to the medical treatment cost pays means that covers by medical treatment insurance system, which can help the insured person to share the medical treatment cost that may disease or accidental injury produces and will reduce the economic burden of individual. The pressure of Medicare payments refers that the medical insurance faces great financial pressure in terms of paying for the medical expenses because of the various influences.

In China, on the basis of the development of society and the change of demographic structure, today's society in particular. Yan et al. shows that the aging of the Chinese population is expected to accelerate in the coming decades, likely resulting in a substantial increase in the numbers of older adults with dependencies [7]. This will lead to the higher pressure of health care system. Firstly, with the increasing of medical technology and the improvement of living standards, the average life expectancy is increased. It means the proportion of the elderly population increases. Because of the coexistence of chronic diseases among the elderly, their demand for medical services is increased. This cause the cost of the health care system has increased significantly. Moreover, people have higher requirements for health, with the increasing demand for medical insurance payment, which undoubtedly increases the pressure of medical insurance payment. As the pressure on health insurance payment increases, the government will take actions to lower drug prices and reduce the burden on the health insurance system. However, the profit margin of pharmaceutical enterprises will be significantly compressed. Consequently, it may pose a challenge to the pharmaceutical industry, including restricting the innovation of medical technology. In conclusion, the pressure of medical insurance payment may influence the development of enterprises, social stability and even the smooth operation of the economy.

2.4. Instability of Supply Chain

Pharmaceutical supply chain refers to the whole process from the purchase of raw materials to the final delivery of drugs to the consumer. According to Andrew W and Vishnupriya, there are four common core components of drug supply chains: manufacturing, distribution, coverage and payment, and prescribing and demand [8]. The instability of the drug supply chain may point the fluctuation or interruption of a link in the whole supply chain, resulting in the production or supply of drugs cannot being conducted continuously and steadily.

This pharmaceutical supply chain is important for Chinese pharmaceutical industry, because it is not only the basis to the timely supply of drugs, but also the key to the safety and high quality of drugs. Nevertheless, some drugs now heavily depend on key raw materials, the most of which need to be imported from abroad. Consequently, the supply chain of these raw materials may be influenced to changes in international relations and other natural factors. It may increase the instability of the supply chain. Additionally, the strict regulation of the drug industry adds to the complexity of the supply chain because companies need to consider the requirements of various drug markets. The limited timeliness of drugs also leads to the high requirements of timeliness management of supply chain.

All these will cause the continuity of pharmaceutical supply chain encountering challenges. This will have a serious negative impact on the entire health care system and the health of patients, and may also lead to a threat to social stability and economic losses.

3. Solution

3.1. Reduce the Degree of Homogeneity

The most effective way is to guide and supervise the policies by the government, and the government will formulate the policies to raise the quality standards and market access threshold of generic drugs. The enterprise also need to solve this problem. It should flexibly adjust and improve measures according to the specific conditions to maintain the stable development of Chinese pharmaceutical industry.

• Raising the threshold for market access: The government strengthens the supervision of the production process of generic drugs to ensure their quality and efficiency. For instance, generic drugs that fail in quality and efficiency will not be allowed to enter the market. At the same time, government also encourage that one firm do not only produce one type of generic drugs and can be diversification.

• Promoting enterprise sharing and integration: Enterprises can carry out technical cooperation and information sharing to reduce repeated development and inefficient competition. Additionally, government encourage the companies of generic drugs to reorganize through mergers and acquisitions. It can more concentrate resources to develop high-quality, high-efficiency products. These all can reduce the low-quality, repeated and homogenized products in the market and optimize the industry structure.

• Market segment position: Companies can develop highly targeted generic drugs for the needs of different patient groups to avoid mass production of homogeneous products with low-technology content. For example, special generic drugs are created to meet the drug needs of special groups such as children and the elderly and develop drugs specifically for specific disease areas.

3.2. Strengthening the Innovation

Strengthening the innovation of research and development capabilities can help Chinese pharmaceutical industry make progress in the research of original drugs. Consequently, whether it is in the pharmaceutical industry or in the society can significantly benefit from its improvement. The government can assist enterprises improve their capability of innovation through the following measures:

• Increasing government support and funding input: The government should continue to increase financial support for pharmaceutical research and development, especially in the research of original drugs and cutting-edge technologies. Providing the tax incentives to companies that engaged in these research and development is an important strategy to reduce the costs. It may improve the firms' enthusiasm for innovation effectively. Government should ensure the innovations are successfully protected through strengthening intellectual property rights protection at the end.

• Promoting the cooperation between enterprises and universities: Through the establishment of drug research and development platform and laboratory, it can strengthen the cooperation between enterprises and universities to integrate various resources to tackle key technologies more conveniently. This may push the theory to practical effectively.

• Strengthening international cooperation and exchanges: Government takes the lead in strengthening the cooperation between enterprises and top international pharmaceutical companies and scientific research institutions. It also can learn advanced experience from foreign through technology introduction and actively participating in clinical experiments of international new drug development.

These all may strengthen the connectivity of pharmaceutical innovation with global, so as to make up for the lack of Chinese pharmaceutical innovation capacity.

3.3. Reducing the Pressures of Health Care Payments

The responsibility of reducing the pressure of health care payment is mainly depend on some policies by government, but it also can be reduced by combining with science and technology. Furthermore, Liang shows that with the continuous development of computers and the Internet, all industries in China have brought new opportunities for change, and pharmaceutical e-commerce has also shown great potential for development [9]. It can solve it through:

• Improving the efficiency of health care: While improving the basic medical insurance, the government should encourage the development of other commercial insurance to form a multi-level medical security system to reduce the pressure of medical insurance. It can establish a multi-level medical insurance system to improve the efficiency.

• Reforming the price of medicine: Government continues to promote large-scale centralized drug procurement policies to reduce drug prices, then it can effectively reduce the cost pressure on the health insurance system. Moreover, it is highly recommend that promote the negotiation of pharmaceutical prices to achieve a reasonable pricing of drugs and medical service devices. This may lead to the effective use of medical insurance funds.

• Promoting online medical care: When using internet technology to develop online medical services, it can improve the decentralization of medical services, alleviating the shortage of offline medical resources and reducing the pressure of medical insurance payment.

• Promoting health management and prevention: Through early intervention and management, it has large probability to reduce the incidence of chronic diseases, which can decrease the medical costs of long-term chronic diseases. The government also need to increase the investment in safety management, including strengthening the publicity of healthy living habits and conducting regular physical examination. That may decline the probability of sudden outbreak of major diseases and control the increase of costs.

3.4. Optimizing Drugs Supply Chain Management

• Supply chain sources diversify: Companies require to adopt the effect of risk diversification, from seeking multiple suppliers in the world. This can reduce the risk of raw material supply chain instability. Cultivating the raw material production in China may help to improve the localization degree of the supply chain, and reduce the dependence of the international market. Cui et al. also points that blockchain is expected to mitigate consumers' risk-aversion and quality uncertainty about generic drugs in medicine supply chains [10]. Through these measures drugs supply chain will be diversification.

• Strengthening cooperation between supply chains: It should strengthen the cooperation between various supply chains, including between the government and enterprises and between suppliers and distributors. It means they can build closer supply chain partnerships. For example, the government can simplify the process and strengthen the supervision by optimizing the supervision of drugs, which may reduce the concerns of firms about the stability of the drug supply chain.

• Creating emergency strategies: Facing the problem of sudden supply-chain disruptions, companies should adjust their production and supply strategies to respond to this situation. For instance, enterprises should reserve the key raw materials and medicines to avoid supply failing to meet the demand.

4. Conclusion

In short, it requires the joint efforts of all parties to solve the problems of China's pharmaceutical industry. Only through the cooperation of the government and all parties in the enterprise and society can the healthy development of Chinese pharmaceutical industry, the public health needs, scientific and technological innovation, and social stability and sustainable economic development be realized. All that can enhance the whole strength of China. It is hoped that China will stand at the forefront of the world in the future pharmaceutical market through our joint efforts.

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