

Strategies for Enhancing the Competitiveness of Retail Chain Pharmacies in China in the Era of Pharmaceutical E-Commerce

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Abstract: With the rapid growth of the “Internet + Healthcare” model, pharmaceutical e-commerce has swiftly gained a substantial market share in China’s pharmaceutical retail sector, thanks to its competitive prices, convenient purchasing channels, and online consultation services. This has put considerable pressure on traditional retail chain pharmacies. This paper provides an overview of the current state of pharmaceutical e-commerce, and analyzes the main challenges faced by retail chain pharmacies, including intense price competition, changes in consumer habits, insufficient digitalization and severe homogenized competition. Drawing on industry practices and case studies, the paper proposes strategies to enhance competitiveness, such as promoting digital transformation and online-offline (O2O) integration, strengthening pharmacist services and health management capabilities, optimizing supply chain management, building differentiated brand advantages, and proactively responding to policy and regulatory requirements. The study argues that, while leveraging their advantages in specialization, community-based operations, service orientation and retail chain pharmacies, should actively embrace digitalization and industrial collaboration in order to achieve sustainable development in the context of e-commerce. This research provides theoretical references for the strategic transformation of retail chain pharmacies and offers practical significance for the high-quality development of the pharmaceutical retail industry.

Keywords: Competitiveness; Digital transformation; Pharmaceutical e-commerce; Retail chain pharmacies; Strategic pathways

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1. Introduction

In recent years, the “Internet + Healthcare” strategy has advanced further and the policy environment for pharmaceutical e-commerce has gradually become more relaxed. These changes have led to profound transformations in China’s pharmaceutical retail industry. Platforms such as AliHealth, JD Health and Ping An Good Doctor have rapidly attracted large numbers of consumers by offering competitive prices, convenient

purchasing channels and a range of health services, resulting in the continuous growth of the e-commerce market.

According to public data, the market size of pharmaceutical e-commerce in China exceeded hundreds of billions of Chinese Yuan by 2023 and continues to grow steadily. This trend has not only transformed residents' drug-purchasing habits, but also put traditional retail chain pharmacies under considerable pressure.

Against the backdrop of intensifying competition, retail chain pharmacies are facing multiple challenges. On the one hand, e-commerce platforms use large-scale procurement and internet technology to reduce sales costs significantly, leading to increasingly fierce price competition. On the other hand, consumers have gradually become accustomed to an integrated "drug purchase + consultation" experience through online channels, resulting in a continuous diversion of foot traffic from traditional pharmacies.

At the same time, retail chain pharmacies generally suffer from shortcomings in digital infrastructure, supply chain integration and service innovation, resulting in serious competition and insufficient overall competitiveness. Without timely strategic adjustments, the survival space of traditional pharmacies will be further compressed. However, e-commerce does not only pose a threat; it also creates new opportunities for the transformation and modernisation of retail chain pharmacies.

As important community-based health service providers, pharmacies have unique strengths in offline channels, pharmacist services and doctor-patient interaction that cannot easily be replicated by e-commerce platforms in the short term. Achieving online-offline (O2O) integration through digital empowerment, enhancing the professional value and service capacity of pharmacists, and building differentiated brand advantages through supply chain optimisation and brand development have become urgent issues for retail chain pharmacies.

In this context, this paper uses the impact of pharmaceutical e-commerce as its research background. It provides a systematic review of the sector's development trends, analyses the competitive pressures and practical dilemmas faced by retail chain pharmacies, and explores strategic pathways for enhancing competitiveness through case studies. The aim is to provide a reference for the digital transformation and strategic upgrading of retail chain pharmacies, offering theoretical and practical value in promoting the high-quality development of China's pharmaceutical retail industry.

2. The development of pharmaceutical e-commerce and the impact on retail chain pharmacies

2.1. The development status of pharmaceutical e-commerce in China

In recent years, the maturity of internet technology and national policy support have driven the rapid development of pharmaceutical e-commerce in China. Since the State Council issued the 'Opinions on Promoting the Development of the Health Service Industry' in 2014, the sector has gradually gained regulatory flexibility, particularly as the National Medical Products Administration has explored ways to sell prescription drugs online, creating favourable conditions for industry growth.

After 2020, the 'Internet + Healthcare' policy, coupled with the catalyst of the pandemic, drove a surge in demand for online drug purchases, significantly increasing the penetration rate of pharmaceutical e-commerce^[1]. According to data from iiMedia Research and the National Health Commission, the market size of pharmaceutical e-commerce in China exceeded 300 billion Chinese Yuan in 2023, with projections indicating continued double-digit growth over the next three years.

In terms of market structure, leading platforms such as AliHealth, JD Health and Ping An Health hold

significant market shares and are expanding beyond single drug retailing to offer integrated services, including “drug purchase + consultation + chronic disease management + health insurance”. Meanwhile, some traditional retail chain pharmacies have begun to establish their own online platforms or collaborate with internet companies to explore O2O models, thereby enhancing market coverage and customer loyalty ^[2].

As shown in **Table 1**, the development of pharmaceutical e-commerce in China is characterised by an increasingly relaxed policy environment, rapid market growth, growing industry concentration and expanding service boundaries. This makes it an indispensable part of the pharmaceutical retail industry.

Table 1. Development of China’s pharmaceutical e-commerce market and major platforms (2019–2023)

Year	Market size (100 million RMB)	Annual growth rate	Industry penetration (share of total retail sales)	Major platforms & market share (approx.)
2019	1350	18%	3.8%	AliHealth 28%, JD Health 24%, Ping An Health 10%
2020	1850	37%	5.5%	AliHealth 30%, JD Health 25%, Ping An Health 12%
2021	2300	24%	6.7%	AliHealth 29%, JD Health 27%, Ping An Health 13%
2022	2700	17%	7.3%	AliHealth 28%, JD Health 28%, Ping An Health 14%
2023	3100+	15%	8.1%	AliHealth 27%, JD Health 29%, Ping An Health 15%

3. The current situation and problems of the competitiveness of retail chain pharmacies in China

3.1. The development status of retail chain pharmacies in China

In recent years, the number of retail chain pharmacies in China has continued to grow, and the industry has become more concentrated. According to statistics from the China Association of Pharmaceutical Commerce, the total number of retail chain pharmacies nationwide exceeded 600,000 by 2023.

Leading enterprises such as China National Pharmaceutical Group (Guoda Pharmacy), LBX Pharmacy, Yifeng Pharmacy and Dashenlin have expanded rapidly, increasing their nationwide presence. The CR5 (the market share of the top five chain enterprises) has exceeded 30%, indicating a trend towards large-scale development. At the same time, continuous efforts have been made at the national level to promote compliance and professional management in the circulation of medicines. This has led to improvements in drug quality assurance and the allocation of licensed pharmacists in retail chains ^[3]. Some large chain enterprises have also begun experimenting with cooperating with internet platforms, exploring “online ordering, offline delivery” O2O models to cope with competition from e-commerce.

Overall, as shown in **Table 2**, retail chain pharmacies in China have certain advantages in terms of channel coverage, brand influence and pharmacist resources. They have become an integral component of the pharmaceutical retail sector, playing a distinctive role in areas such as chronic disease management and community health services ^[4].

Table 2. Scale of China’s retail chain pharmacies and leading enterprises (2023)

Indicator	Data/Status
Total number of retail chain pharmacies nationwide	Over 600,000
Industry concentration (CR5)	Over 30%
Major leading enterprises	Guoda Pharmacy, LBX Pharmacy, Yifeng Pharmacy, Dashenlin, Jianzhijia
Number of Guoda Pharmacy outlets	10,000+
Number of LBX Pharmacy outlets	9,000+
Number of Yifeng Pharmacy outlets	7,000+
Number of Dashenlin outlets	6,500+
Industry development trends	Rapid channel expansion, accelerated digital exploration, gradual promotion of O2O models

3.2. Major problems at the current stage

Although retail chain pharmacies continue to expand in size, they remain insufficiently competitive in the face of e-commerce, as reflected in several areas as outlined:

- (1) Their level of digitalisation is relatively low. Most pharmacies are behind the times when it comes to building information systems, managing member data and applying intelligent marketing tools. They have yet to develop mature digital operating models, which makes it difficult for them to compete with the data-driven, precise marketing strategies employed by pharmaceutical e-commerce platforms^[5];
- (2) Their supply chain integration capabilities are inadequate. Compared with e-commerce platforms, retail chain pharmacies generally have weaknesses in terms of procurement bargaining power, logistics efficiency and inventory management. This results in relatively high drug costs and low circulation efficiency, which constrains both price competitiveness and the customer experience;
- (3) Service capabilities need improvement. Although pharmacies have an advantage in terms of professional pharmacist services, these functions are often weakened in practice, with the focus remaining mainly on ‘selling drugs’ rather than extending to health management, chronic disease intervention and personalised medication guidance^[6]. This makes it difficult to build long-term customer loyalty. In addition, there is serious homogenised competition within the industry. Most pharmacies offer similar products, use similar promotional methods and have similar store layouts, lacking distinctive value propositions or brand personalities. Consequently, consumers often base their choices primarily on price, which further intensifies low-level competition;
- (4) Adaptation to policies and regulations is insufficient^[7]. The pharmaceutical retail industry is greatly affected by policy. Changes such as the sale of prescription drugs online and the inclusion of retail pharmacies in medical insurance settlement systems can have a direct impact on business models. Some chain pharmacies still demonstrate shortcomings in terms of compliance management, medical insurance settlement and drug traceability systems. This undermines their capacity for sustainable development.

In summary, while retail chain pharmacies in China have certain advantages in terms of scale and channels, they still suffer from significant deficiencies in digital transformation, supply chain efficiency, service specialisation and differentiated competition. These issues leave them relatively passive in the face of pharmaceutical e-commerce and highlight the urgent need for transformation and upgrading^[8].

4. Strategic pathways for enhancing competitiveness

Retail chains should empower licensed pharmacists by expanding their remit beyond drug dispensing to include chronic disease management, health consultations, rehabilitation guidance and other value-added services. This would gradually enable pharmacies to evolve into community health service centres^[9].

By organising health seminars, offering personalised pharmaceutical guidance and conducting regular follow-ups, pharmacies can increase patient trust and loyalty, thereby creating service barriers that distinguish them from e-commerce platforms. Furthermore, supply chain optimisation and industrial collaboration are important ways of enhancing competitiveness. Traditional pharmacies generally have weak bargaining power in procurement and low logistics efficiency, resulting in less competitive drug prices and slower circulation. Therefore, chain pharmacies should reduce costs by centralising procurement, sourcing directly, and establishing regional logistics centres. At the same time, they should promote the development of intelligent warehousing and cold-chain systems to ensure the safe and timely distribution of drugs.

At an industry level, pharmacies could collaborate with hospitals and internet healthcare platforms to create integrated ‘diagnosis-purchase-follow-up’ health management ecosystems. This would enable them to share resources, complement each other’s value, and enhance their overall service capacity and industry standing. Meanwhile, brand building and differentiated competition are crucial strategies for overcoming homogenisation.

As most pharmacies in the industry have similar product assortments and promotional approaches, which can lead to price wars, pharmacies must develop unique brand identities and distinctive services to stand out from the competition^[10]. For example, they could position themselves as ‘chronic disease management pharmacies’ or ‘elderly health specialty pharmacies’ to meet the needs of specific segments of the population.

Additionally, public welfare activities, corporate social responsibility initiatives and community engagement can strengthen brand recognition and consumer trust. Finally, in the face of increasingly strict policies and regulations, pharmacies must proactively improve compliance as a baseline requirement, building on a foundation of drug safety and quality management. Pharmacies should fully implement drug traceability systems and licensed pharmacist coverage to ensure safety and reliability throughout the sales and usage process.

On the other hand, they should align with electronic medical insurance vouchers and internet-based reimbursement systems to improve consumer access to medical insurance settlements and enhance the purchasing experience. At the same time, they should establish cooperative channels with medical institutions to expand the prescription drug market and seize policy opportunities, such as the trend of ‘prescription outflow’.

It is foreseeable that retail chain pharmacies can only effectively enhance their competitiveness under the impact of pharmaceutical e-commerce and establish sustainable strategic support for long-term development by simultaneously advancing digital transformation, service innovation, supply chain integration, brand development, and regulatory compliance.

5. Case analysis

In order to further validate and enrich the strategic pathways for enhancing competitiveness that were proposed earlier, this paper selects two representative enterprises from among China’s retail chain pharmacies, LBX Pharmacy (Laobaixing) and Yifeng Pharmacy to examine their recent transformation practices. It explores how they have responded to the impact of pharmaceutical e-commerce, and it draws insights from their experiences.

5.1. LBX pharmacy: Diversified layout and digital transformation

As one of China's leading pharmacy retail chains, LBX Pharmacy has actively promoted digitalisation in recent years. The company has established its own "LBX Online Mall" and joined platforms such as JD Daojia and Meituan Pharmacy, achieving online-offline channel integration and meeting consumer demand for "immediate delivery". In terms of supply chain management, LBX Pharmacy has reduced operating costs and improved distribution efficiency through centralised procurement and the construction of regional logistics centres.

In addition, LBX Pharmacy is emphasising the extension of its professional services by setting up 'chronic disease management zones' that provide added-value services such as blood sugar and blood pressure monitoring, as well as health consultations. This enhances customer loyalty. To build its brand, the company leverages public welfare activities and community health lectures to enhance its social image and create competitive advantages. This case study shows that digitalisation and enhanced service capacity are effective ways for retail chain pharmacies to strengthen their competitiveness in the face of e-commerce.

5.2. Yifeng pharmacy: Regional focus and differentiated services

Yifeng Pharmacy's development strategy places greater emphasis on a regional focus and differentiated positioning. The company has established a strong network of stores in central and eastern China, enhancing customer loyalty through membership-based operations. In terms of digitalisation, Yifeng has developed an intelligent management system that integrates procurement, inventory and sales. It has also promoted personalised marketing and health management services by analysing member data.

In terms of service models, Yifeng Pharmacy emphasises the value of pharmacists by launching "Pharmacist-to-Home" services, which provide drug delivery and medication guidance for elderly patients and those with chronic conditions. At the same time, Yifeng has introduced the "Yifeng Health +" platform, which integrates health consultations, drug deliveries and membership services to create a comprehensive, differentiated service system.

This case study demonstrates how retail chain pharmacies can establish unique characteristics in e-commerce competition by leveraging regional advantages, strengthening service innovation and deepening membership operations.

5.3. Case insights

An analysis of LBX Pharmacy and Yifeng Pharmacy reveals that they have undergone similar transformations in response to the impact of e-commerce as listed below:

- (1) Both companies prioritise digital transformation, utilising online platforms to extend the scope of their services;
- (2) They both strengthen pharmacist services and health management, thereby highlighting the irreplaceable value of offline professional services;
- (3) They both continuously invest in supply chain integration and brand building to create cost advantages and achieve competitive differentiation.

These experiences demonstrate that retail chain pharmacies are not merely "vulnerable groups" in the context of e-commerce. Instead, they can explore development pathways suited to their own circumstances through strategic adjustments and business model innovation. This allows them to achieve differentiated competition and even complementary collaboration with pharmaceutical e-commerce.

6. Countermeasures and recommendations

Under the continuous impact of pharmaceutical e-commerce, retail chain pharmacies in China must overcome current challenges and achieve sustainable development by coordinating efforts across the industry, enterprises and policymakers to drive transformation and upgrading. At the industry level, promoting standardisation and digitalisation is an inevitable trend. The current pharmaceutical retail market suffers from incomplete drug traceability systems, inconsistent service standards and uneven digitalisation.

Industry associations and regulatory authorities must provide stronger guidance, promote the creation of unified standards for pharmaceutical distribution and pharmacy services, and speed up the development of comprehensive digital traceability systems to ensure the safety and quality of drugs. Building industry-wide data-sharing platforms and promoting interconnectivity between pharmacies can improve supply chain efficiency, share resources, and foster collaborative development within the industry, thereby creating a favourable ecosystem for digital transformation.

At the enterprise level, developing unique competitive advantages is crucial for retail chain pharmacies to overcome e-commerce challenges. On the one hand, chain pharmacies should actively promote the integration of online and offline services by developing their own platforms or collaborating with internet companies to create more extensive and convenient O2O models that meet the diverse needs of consumers. Conversely, they should empower licensed pharmacists by expanding their services beyond traditional drug guidance to include chronic disease management, rehabilitation follow-up and health consultations. This will gradually transform pharmacies into community health service centres, enhancing customer loyalty.

At the same time, enterprises should focus on supply chain integration and cost control by enhancing centralised procurement capabilities and establishing intelligent warehousing and cold-chain logistics systems. This will narrow the gap with e-commerce in terms of price and efficiency. In terms of brand building, retail chain pharmacies should avoid engaging in pure price competition. Instead, they should create a differentiated position and offer innovative services. For example, they could specialise in chronic disease management or elderly health services to meet the needs of specific market segments.

Public welfare activities, corporate social responsibility and community engagement can also enhance brand influence and customer trust. At the policy and regulatory level, the government should create a more flexible and favourable environment for the transformation and development of retail pharmacies while ensuring drug safety. The medical insurance settlement system should be improved and the full application of electronic medical insurance vouchers in retail pharmacies promoted to lower consumers' purchasing thresholds and enhance pharmacies' attractiveness. Restrictions on online prescription drug sales should be relaxed to enable pharmacies to expand their prescription drug market share through integration with internet healthcare. Meanwhile, the government should introduce targeted support policies to encourage retail chain pharmacies to pilot digital transformation projects and explore innovations in smart supply chains, intelligent marketing and health services. Tax incentives or financial subsidies could be provided to reduce transformation costs.

In terms of regulation, the quality of drugs and the services provided by pharmacists should be supervised more strictly to ensure the healthy and orderly development of the industry. This would provide institutional guarantees for the transformation and upgrading of retail chain pharmacies. In conclusion, enhancing the competitiveness of retail chain pharmacies in China depends not only on internal reform and innovation, but also on industry-wide standardisation and supportive policy frameworks.

Only by advancing along multiple pathways: digitalisation, service innovation, differentiation and compliance,

can retail chain pharmacies establish new competitive advantages in the face of the dual pressures of the impact of e-commerce and industry transformation, ultimately achieving high-quality, sustainable development.

7. Conclusions

The rapid development of pharmaceutical e-commerce is profoundly reshaping China's pharmaceutical retail landscape, impacting retail chain pharmacies in multiple ways, including price, channels and services. This paper analyses the current state of pharmaceutical e-commerce and the problems faced by chain pharmacies. It also presents representative cases and proposes pathways for enhancing competitiveness. These include taking digital transformation as the core driver, providing professionalised services as a competitive barrier, optimising the supply chain and building the brand as differentiation strategies, and managing compliance and securing policy support as guarantees. The study shows that retail chain pharmacies are not simply weak players in the face of e-commerce; rather, they can achieve online–offline integration and create unique value through proactive transformation, thereby securing a position in the competitive landscape. Looking ahead, as digital technologies become more widely applied and regulatory frameworks improve, the relationship between retail chain pharmacies and pharmaceutical e-commerce is expected to evolve towards complementarity and collaboration. This will promote the high-quality development of the pharmaceutical retail industry.

Disclosure statement

The authors declare no conflict of interest.

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