

Nigeria's Pharmaceutical Industry: Addressing Over-Reliance on Importation and Proposing Sustainable Solutions

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Abstract

In Africa, Nigeria can be regarded as the most populous country with a population size of 227 million people and also a lower-middle-income country. As at 2014, according to a report by WHO, 25% of the pharmaceutical products needed by Nigerians were delivered locally, while the remaining 75% are imported from nations such as India, UK and China, this performance indices indicate poor performance. Due to the heavy reliance on importation faced by the Nigeria's pharmaceutical industry, access to medicines that are essential has been limited and local production capacity has weakened. With the growing interest in plant-based therapies, dosage standardisation for many of these herbal products due to insufficient funding for extensive research into herbal medicine and insufficient clinical trials has made it difficult to assess the effectiveness of herbal treatment systematically and validate scientifically the traditional remedies. Limited facilities for in-vivo and in-vitro studies further limits knowledge advancement in pharmaceutical sciences. The effects of these situations have resulted into drug shortages, prolific substandard medicines and vulnerability to supply chain disruptions. Addressing these challenges requires a multifaceted approach involving policy reform, and the establishment of well-equipped pharmaceutical research and production facilities. Countries such as India and the United States have implemented initiatives backed up by the government which has enabled local companies to manufacture APIs, enhance self-sufficiency in healthcare and research capabilities. Nigeria can adopt similar strategies to reduce dependency on importation and promote innovation in the pharmaceutical sector.

Keywords: Pharmaceuticals, Importation-Dependency, Repackaging, Nigeria, Drug Development

Introduction

Nigeria is the sixth most populous country in the world, its population size accounting for 2.7% of the world's population [1]. In Africa, Nigeria can be regarded as the most populous country with a population size of 227 million people and also a lower-middle-income country [2]. This is important to note because a report published by WHO estimates that the percentage of the population that lacks access to essential medicines in low-income countries is 39% and 24% in middle-income countries. About 80% of the total number of people in the world without access to essential medicines live in low-income countries [3].

Most Nigerians, particularly those living in rural communities do not have access to orthodox medicine, they rely on traditional medicine to solve their health problems [4]. Traditional and herbal medicines are popularly used due to affordability, accessibility, perceived safety and potential for treating diseases [4]. Although, it has limitations of inconsistent regulation and a lack of standardization which could also pose a threat.

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Pharmaceutical manufacturing industries are saddled with the responsibility of providing pure, safe, efficacious and quality products to meet the healthcare demands of the populace [5]. Pharmaceutical manufacturing in Nigeria dates to the pre-colonial era, when multinational European companies set up subsidiaries in the country. The pharmaceutical sector has come a long way from the pre-independence period where the pharmaceutical sector was solely involved in the distribution of imported drugs by the representatives of the different foreign manufacturers [6]. Now, pharmaceutical manufacturing companies are known to produce generic medicines i.e copies of the innovator brand. Although, the active pharmaceutical ingredients and excipients are still imported from nations such as India and China.

As at 2014, according to a report by WHO, 25% of the pharmaceutical products needed by Nigerians are delivered locally, while the remaining 75% are imported from nations such as Asian countries, and this indicates poor performance [7]. The aim of this commentary is to address the over-reliance of the Nigerian Pharmaceutical Industry on importation and to provide sustainable solutions that will bring an end to the problem.

Current State of Nigeria's Pharmaceutical Industry

The Nigerian Pharmaceutical Industry has been said to possess the capacity to become a giant in the manufacturing, distribution and sale of pharmaceutical products in sub-

Saharan Africa [8]. The industry is a huge and vital part of the healthcare sector, catering to the growing population of over 200 million people to ensure the availability of essential and other medicines in the country [9]. An overview of the industry by the Oxford Business Group indicated that it is worth an estimate of over \$1.4 billion with the potential to reach \$4 billion by 2026 [10]. Despite its importance and large market potential, the industry still faces serious challenges with high import dependency, limited local manufacturing capacity, and infrastructural deficits being the most significant. These factors greatly affect the affordability, availability, and quality of medicines, limiting the capacity to achieve a self-reliant healthcare system [11,12,13].

Nigeria is still heavily dependent on importation for not only finished pharmaceutical products but also active pharmaceutical ingredients (APIs), equipment and other raw materials. About 70 percent of medicines in the country are imported, accounting for \$4 billion of Nigeria's total healthcare expenditure of \$10 billion [9,13]. An overview by the National Economic Summit Group (NESG) reported that even though there are currently over 130 registered pharmaceutical manufacturers in Nigeria, there is a continuous decline in the proportion of those actively involved in manufacturing [10]. The performance metrics for Nigeria's pharmaceutical sector indicate that the industry operates at just 40% capacity utilization, meeting only 25% of the local demand for medicines with the remaining 75% of drugs outsourced from other countries, primarily Asian countries. And as of 2021, over 300 drug importers are operating in the country with China and India being the major sources [10, 14, 15].

Green chemistry, an innovative approach to drug research and development that emphasizes the design of drugs and other chemical products has really gained attention globally but its adoption in Nigeria is still very much limited [16]. This limitation has hindered the innovations in the Nigeria pharmaceutical sector [16].

The first research institution dedicated to research and development of drugs and vaccines in Nigeria which is the Nigeria Institute of Pharmaceutical Research and Development (NIPRD) has laboratories that support in-vivo and in-vitro studies, thus supporting the advancement of pharmaceutical sciences in the country. Not only that, some academic research institutions e.g University of Ibadan possess laboratories for conducting the in-vivo and in-vitro testing which is evident in their involvement in evaluating the antiplasmodial activities of herbal formulations using both in-vivo and in-vitro methods [17]. Despite the presence of these facilities, there is shortage of skilled personnel, limited funding and inadequate infrastructure which has been hindering the full potential of in-vivo and in-vitro research in Nigeria [18].

A local herbal medicine industry would have reduced the heavy reliance on importation and enhanced self-sufficiency in healthcare [19]. With the growing interest in plant-based therapies, Nigeria has a very big potential to become an important key player in the herbal medicine market [20]. However, the current situation which is lack of clinical trials, dosage standardisation for many of these herbal products due to insufficient funding for extensive research into herbal medicine has made it difficult to assess the effectiveness of herbal treatment systematically and validate scientifically the traditional remedies by the regulatory body i.e. the National Agency for Food and Drug Administration and Control (NAFDAC) [21].

Consequences of Reliance on Importation and Repackaging of Pharmaceutical Products

Nigeria's heavy dependence on pharmaceutical importation has weakened its healthcare system, leading to drug shortages, high costs, and reduced accessibility. Despite having over 115 registered pharmaceutical manufacturers, 70% of drugs in Nigeria are imported, exposing the sector to global supply chain disruptions. The COVID-19 pandemic underscored these vulnerabilities, as halted international trade led to critical shortages of essential medicines [22, 26].

At a national level, this dependency stifles local pharmaceutical growth, increasing operational costs and limiting self-sufficiency. Local manufacturers struggle to compete against imports due to high costs of active pharmaceutical ingredients (APIs), an unfavourable tax environment, and weak government incentives. As a result, domestic production operates at just 40% capacity, unable to meet national demand [22, 24].

At a state level, these challenges have become even more pronounced, as seen in Anambra State, where pharmaceutical firms face significant supply chain disruptions, including customs clearance delays, fluctuating regulatory policies, inadequate transportation infrastructure, and unreliable suppliers [27]. Findings indicate that these disruptions have led to a 20% increase in import clearance time, a 15% rise in delivery delays, and a 10% increase in product returns due to transportation challenges. Additionally, inefficiencies in inventory management and supplier reliability have resulted in higher holding costs, decreased turnover rates, and an overall decline in operational efficiency. These barriers have negatively impacted firms' profitability and their ability to ensure timely drug availability, further straining the healthcare system in the State.

Beyond economic setbacks, regulatory weaknesses weaken the issue. The poor enforcement of pharmaceutical laws and a fragmented drug distribution system has facilitated the infiltration of counterfeit drugs, which now constitute 17% of the market, posing severe public health risks [24, 25].

Additionally, the growing use of herbal medicinal products lacks proper quality control, increasing concerns over microbial contamination and inconsistent efficacy [24].

This import-dependent model, coupled with weak infrastructure and regulatory inefficiencies has not only undermined local production but also leaves Nigeria vulnerable to healthcare crisis. Overall, a multifaceted approach is essential to increase the pharmaceutical landscape in Nigeria.

Recommendations

Firstly, research breakthroughs in green chemistry, herbs and computational analysis in drug discovery should be implemented as this could lead to a more sustainable pharmaceutical development. This approach has been implemented into drug discovery processes in companies like AstraZeneca in the United States [28]. A strategic shift to adopt green chemistry in Nigeria will greatly improve innovation in the pharmaceutical sector in terms of drug design.

Addressing the lack of adequate infrastructure in the field of pharmaceutical science is crucial for Nigeria's Pharmaceutical manufacturing industry to grow and reduce its reliance on imported medications. Many of the existing industries do not have the required facilities to synthesize lead potential medications highlighted from research in drug discovery. However, to synthesize these products, necessary equipment needs to be made available without which no invention can occur. Strong pharmaceutical manufacturing sector was possible in India because there was an initiative such as "Production Linked Incentives (PLI)" scheme backed up by the government and has enabled local companies to manufacture APIs [29]. The Nigerian government can adopt this strategy by providing infrastructural support for local pharmaceutical companies.

The existing testing environments in research institutions, particularly, the National Institute of Pharmaceutical Research and Development (NIPRD) are not enough to take the pharmaceutical innovation in Nigeria to the next level. Additional testing environments where synthesized compounds can be tested in vitro/in vivo need to be established by the government in other research institutions including our universities. The establishment of these testing environments will advance the existing knowledge in the field of pharmaceutical science. There are about 27 centers in the US National Institutes of Health with each of them having a focus on a specific research area including drug development and in-vivo/in-vitro testing, collaborating with universities and research centers nationwide. [30]. This strategy can be adopted by the Nigerian Government, thus taking the pharmaceutical sector to the next level of innovation.

Moreso, local Pharmaceutical Production should be encouraged as it could reduce the import dependency of

pharmaceutical manufacturing industries in Nigeria and enhance self-sufficiency in healthcare. The over reliance on importation of active pharmaceutical ingredients will be reduced as drug invention will take the major pool of our manufacturing industries as it is in India where programs that boost domestic production of Active Pharmaceutical Ingredients were initiated [31]. Moving from import-dependency to local manufacturing will enhance self-sufficiency in the healthcare sector and even much more create jobs for other professionals in fields that are related to pharmacy.

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Conflict of Interest

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Disclaimer

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