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The Projects of Pharmaceutical Industry in Iraq for the Period (2014 - 2021): Developments and Challenges

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Abstract

Many nations have given this industry high priority in order to fulfill their medical needs and then sell the excess to other nations due to the importance of medicine, both specifically in human life and generally as a resource for the state economy. The demand for medicine is unaffected by the situation of the economy since it is an inelastic good. Despite their exorbitant pricing, drugs are nevertheless in considerable demand, particularly those for chronic diseases. Therefore, the importance of this research was raised up, because it shows the extent of the need for pharmaceutical companies and the extent to which they achieve revenue. The current research has dealt with the pharmaceutical industry locally and globally in terms of how important the medicine is, the amount of production, factors, and challenges facing such industry in particular. Furthermore, the research dealt with the stages of manufacturing the medicine, its forms and developments in the pharmaceutical industry in Iraq. The two researchers has come up with a number of conclusions and recommendations that would contribute to solving the problems facing the pharmaceutical industry in Iraq.

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Introduction

Both of the pharmaceutical industry and the medical supplies industry are considered vital and instrumental industries that receive great attention in several countries, as medicine is associated with the individual's health and the health of society as a whole. Due to the availability of most ofcomponents for these industries, particularly money and labor, as well as the need for these goods in light of the several crises the nation has experienced in terms of wars and economic sanctions, these industriesbecome of major significance to Iraq. These crises and bas economic situations and wars have resulted that the general public now experiences more illnesses, which has increased demand for medication. According to the most recent numbers provided by the Ministry of Planning, there are more than 40 million people living in Iraq. Such a number is a large market for this industry, as well as what can be obtained from marketing the drug abroad.

Research Importance:

The significance of the research is derived from the significance of the pharmaceutical commodity, as medicine is a significant good because of its relationship to human health. Moreover, it is a significant economic good that helps nations achieve pharmaceutical security by achieving drug self-sufficiency.

Research Aims

The research aims at showing the significance of the pharmaceutical commodity and the country need for this industry, as well as other objectives:

1- Introducing the reality of the pharmaceutical industry in Iraq and the challenges and obstacles it faces.
2- Directing the attention of investors and researchers to the importance of the pharmaceutical industry and the extent of the need for the projects ofpharmaceutical industry in Iraq.

Research Hypothesis:

The research hypothesizes that the pharmaceutical companies in Iraq cannotmeet the actual need for medicine in Iraq.

Research Problem:

The pharmaceutical industry is of great importance due to its global position in the economy in general and in Iraq in particular. Therefore, the research problem was raised by asking the following question:

- Do pharmaceutical companies in Iraq have sufficient capabilities to meet the need of local economy for medicine in light of the challenges facing the pharmaceutical industry in Iraq?.

The pharmaceutical industry: Conceptual basics

First: Medicine: Linguistically and idiomatically

Linguistically, "Dawa'a" Medicine" is defined as "everything that is taken by a person to remove a disease or pain". It is said "dawah" cured him" i.e. cured with medicine. "tadawa "took a medicine", i.e. cured by something or treated with it. Idiomatically, "dawa'a" medicine" is defined as "every substance or compound that has curative or preventive or diagnostic properties for human or animal diseases. (Central Agency for Public Mobilization and Statistics). Medicine has also been defined by the US Food and Drug Administration (USFDA) as "any substance or substances intended for use for the purpose of diagnosing, curing, relieving pain, treating, or preventing disease, whether in humans or animals. It also includes such substances (other than food) intended to affect the structure or bodily functions of a human or animal." (Tariq, 2017)

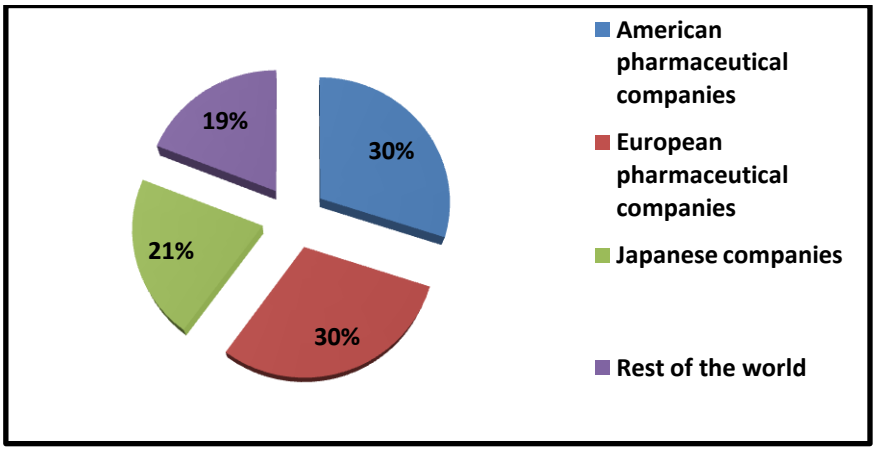
Second: The pharmaceutical industry in the world

1- A brief history

Due to connecting this industry to human existence, the pharmaceutical industry is a continual and long-lasting one. From another perspective, the pharmaceutical industry is viewed as the most expensive industry, because of the unique features and methods required. After the military industry, the pharmaceutical sector ranks second in importance.Medicine is a necessary, essential, and inelastic commodity. The industry has been developing around the world as drug sales around the world are growing. In 1972, the pharmaceutical industry achieved (70 billion dollars), where this development started to rise until it reached to (115 billion dollars) in 1982 10 years later, while it achieved (200 billion dollars)in 1992. The development of this industry continued to exceed drug sales in 2002 by (355 billion dollars). (Wafieeq, 2007)

In 2020, around $1.43 trillion was spent on the pharmaceutical industry. In order to keep pace with the advancement of medications, pharmaceutical corporations have invested over $150 billion in research and development initiatives for the sector. South American countries, European and Asian countries, and a small percentage of Arab countries participate in the composition of the drug market in the world, as shown in Figure No. (1). The percentage of American companies contribution to the pharmaceutical industry is 30% of global production, and European countries share this figure with the same percentage, 30%, followed by Japan, with a production rate of 21%, and the rest is distributed to other countries of the world. The share of Arab countries in the pharmaceutical market is 3% of global production, and they produce approximately $11 billion in value.

Figure (1) Pharmaceutical industry in the world



Source: The pie chart was prepared by the researchers depending on the data above.

One of the key obstacles encountering the pharmaceutical industry is the TRIPS Agreement. It is known as the Agreement on Trade Aspects of Intellectual Property Rights, it is an acronym for an international agreement administered by the World Trade Organization that sets minimum standards for laws relevant to many forms of intellectual property and is applicable to members of the World Trade Organization (WTO). (Noon, 2016). According to this agreement, patent protection is granted for a minimum period of 20 years, calculated from the date of filing the patent application. Therefore, no country or company has the right to use this drug and producing it for the duration of the protection period. (Saeed, 2015). Accordingly, the drug (the generic) appeared, which is a drug that contains the same composition as the original drug in type and quantity. It has the same effect and therapeutic function. Patent protection was withdrawn from him after 10-20 years and it became possible to produce it by other companies, provided that the composition and

components of the drug are adhered to and according to quality. (Ameen, 2019). We notice that the pharmaceutical industry in 2005 has developed in comparison to previous years, as a result of the end of legal protection for patents for many drugs in this year. The generic pharmaceuticalindustry has developed significantly worldwide. According to the International Organization for Drug Statistics, the market for the generic pharmaceuticalindustry increased in 2015 to 209 billion dollars, with an average growth rate (9% - 12%), due to the loss of patents and the adoption of many countries on this policy to reduce treatment costs, such as India and China. About 84% of the medicines sold in the world are consumed by developed countries. (Msmash, et al, 2021). The sales of medicines reached to the mentioned sales during the years under study (2014-2020), as shown in Table No. (1).

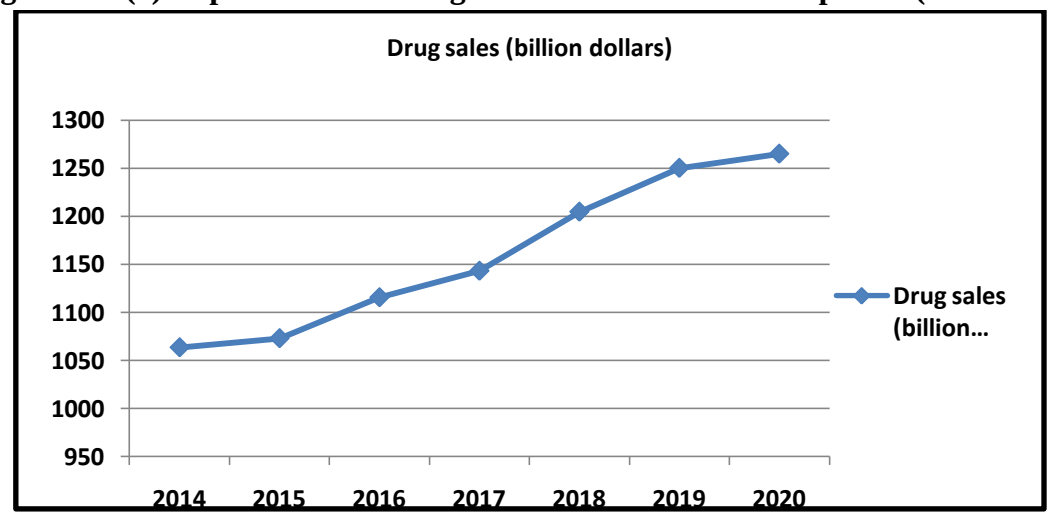
Table No. (1) The drug sales in the world for the years (2014-2020)

No	The amount of drug sales in the world (billion dollar)	Years	Growth average
1	**1063.6**	**2014**	**-**
2	**1073.1**	**2015**	**%0.89**
3	**1115.7**	**2016**	**%3.97**
4	**1143.3**	**2017**	**%2.47**
5	**1204.8**	**2018**	**%5.38**
6	**1250.4**	**2019**	**%3.78**
7	**1265.2**	**2020**	**%1.18**

Source: The table was prepared by the researchers depending on various statistics and reports for the years (2014-2020), the World Health Organization as well as the Arab Federation for Producers of Medicines and Medical Supplies. Growth rate was calculated by the researcher.

The pharmaceutical industry achieved high sales during the successive periods, especially the period under study (2014-2021) due to the significance of this industry and the inability to dispense with it as it is related to the individual'shealthin particular and the health of society in general. We notice the increase in drug sales in the world with a growth rate by (3.97%) in 2016 in comparison to sales in 2015 and 2014, while we notice that the growth rate has increased dramatically by (5.38%) during 2018. It becomes crystal clear how solid and importantthis industry through its continuity, rather the increase in the amount of production and sales during the period of the Corona pandemic during the period 2020-2021. We find that many industries, and most of them, have stopped completely or a large part of their production and have been exposed to great losses.

Figure No. (2) Improvement of drug sales in the world for the period (2014 - 2020)



Source: The figure was prepared by the researchers depending on the data in Table No. (1)

The top 10 companies in the world achieved high revenues from the pharmaceutical industry, as these revenues were estimated at (426.18) billion dollars. Table (2) shows the amount of revenue for each of the companies holding the highest positions in the world during the year 2020. (Al-Madina Journal, 2020)

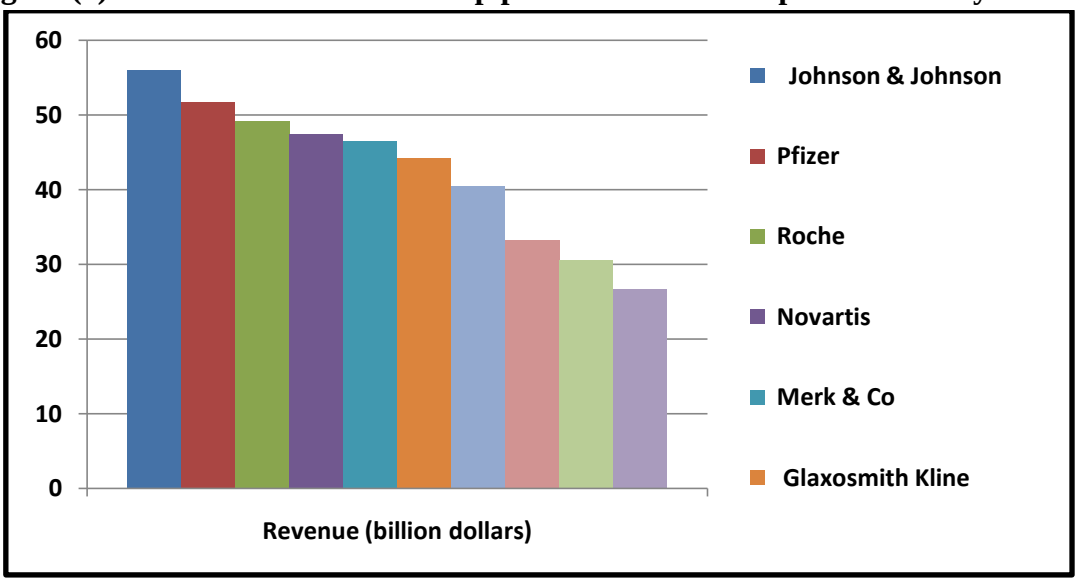
Table (2) Drug production in the top 10 companies in the world for the year 2020

No	Name of the company	Revenues (billion dinars)	Nationality
1	**Johnson & Johnson**	**56.1**	American company
2	**Pfizer**	**51.75**	American multinational company
3	**Roche**	**49.23**	Swiss company
4	**Novartis**	**47.45**	Swiss company
5	**Merk& Co**	**46.45**	American company
6	**Glaxosmith Kline**	**44.27**	British company
7	**Sanofi**	**40.46**	French company
8	**Abbvie**	**33.26**	American company
9	**Takeda**	**30.52**	Japanese company
10	**Shanghai Pharmaceuticals (SPH) Holding**	**26.69**	Chinese company
Total of revenues		**426.18**	

Source: The table was prepared by the researchers based on reports and statistics for the year 2020

The highest revenue-earning companies for the year 2020 can be illustrated by the following figure:

Figure (3) Revenues of the world's top pharmaceutical companies for the year 2020



Source: The figure was prepared by the researcher depending on the data in Table No. (2)

2- Factors affecting the pharmaceutical industries globally

There are a number of factors that affect the pharmaceutical industry in the world, which can be summarized in the following points: (Musmash et al, 2021)

A. Population growth: Population growth is one of the factors that have a significant impact on the pharmaceutical industry. The pharmaceutical industry process is directly related to population growth.
B. Technological development: The pharmaceutical industries are characterized by advanced and rapidly growing technology. The pharmaceutical industry is of intensive capital through using advanced technologies and machines through which production is carried out. The more technology develops, the more it leads to an increase in production quantities in the world.
C. Research and Development: One of the important and effective factors affecting the growth of the pharmaceutical industries is research and studies. Pharmaceutical industries rely heavily on studies and spend large amounts of money on them to find new pharmaceutical products as well as to modify existing products to be more effective in addition to the type of product. The more research and studies, the more it leads to new pharmaceutical goods and developingthecurrent pharmaceutical goods.

D. Alternative medicines: The pharmaceutical industry suffers from great competition between companies, where alternative or similar medicines are among the influencing factors. Some medicines are distinguished by their high price where there are similar ones in the market, pushing consumers to buy the alternative product. This in turn affects the overall demand for this commodity.

E. The phenomenon of companies corporation and strategic alliances: The phenomenon of corporation is considered important to keep pace with developments and growth in the pharmaceutical industry, because the pharmaceutical industry requires huge funds to gain market share and develop research and studies to produce new types of medicine. Some companies resort to corporations or alliances to reduce these costs and distribute them. Moreover, it provides sums through which production can be developed, and get benefit from the mutual experiences.

F. International laws and regulations: International laws directly affect the process of drug manufacturing and its spread. One of these laws and agreements is the TRIPS Agreement, which gave the right to the patentee or the owner of the idea of a particular commodity to reserve the right and produce his commodity on his own for years up to 30 years. This led to affect the pharmaceutical industry in some developing countries, which are unable to conduct large and accurate research as conducted by major companies and developed countries. This prompted them to pay attention to simple medicines that could be produced locally.

3- Challenges facing the pharmaceutical industries globally

The pharmaceutical industry faces many challenges and obstacles that stand in the way of the development of the pharmaceutical industry in Iraq and consequently increasingtheIraqi exports of pharmaceutical products. The key challenges are:

1- The pharmaceutical industry is considered one of the industries requiring large capital compared to other projects due to its need for high-precision technology techniques. It needs continuous development due to the complexity and accuracy of its operations and compliance with certain production laws and procedures. It is one of the capital-intensive industries which does not require many labors as much as it needs experience and high skill. (Rasul, 1976)

2- The pharmaceutical industry is considered one of the regulated industries which is subject to a large number of laws, restrictions and regulations that govern the planning, construction and production stages. The location of the factory, the quality of construction, manufactured materials and raw materials are all subject to special and specific standards, laws, conditions and controls, which are often not important in other industries. (Wafiq, 2007)

3- The pharmaceutical industry needs certain procedures and methods for production, in accordance with certain controls and the pharmacopoeia. It is a periodically re-published book that contains information about drugs, their chemical composition, chemical and physical properties, preparations, methods of administration, pharmacological properties (absorption, distribution, metabolism, and excretion), mechanisms of action, pharmacological actions, side effects, and antidotes used when poisoned by them. There are two types of official Pharmacopoeia, such as the British Pharmacopoeia (B.P) and the United States Pharmacopoeia (USP), and unofficial Pharmacopoeias, such as the Pediatric dosage handbook and European pharmacopoeia. (Al-Sanafi, 2012). These pharmacopoeiasare issued by the official scientific, medical and pharmaceutical bodies, in addition to specialized committees. Pharmacopoeiasare subject to continuous development and addition and deletion according to developments resulting from scientific research. (Al-Ruawidah, 1980)

4- The need for multiplicity and diversity of raw materials used in the production of preparations, because each medicinal preparation has a special composition and components that differ from other preparations or other types. (Wafiq, 2007)

5- One of the most important challenges facing the pharmaceutical industry is the patent that protects certain types of medicine, which are the most expensive in the world. The pharmaceutical industry can only be produced by the company that reserves this right in accordance with international laws and regulations, because the company was the one undertaking the research and studies to reach this product, whose costs are very high. Other companies can't do it. Therefore, this type is characterized by the lack of competition because its product is unique, while there are medicines available and the production process is characterized by a kind of ease. These types have low prices and high competition because everyone can produce them. (Tariq, 2020)

Second: The importance of the pharmaceutical industry

The pharmaceutical industry is an important link of the advanced chemical industries, where we can briefly explain the importance of the pharmaceutical industry through the following: (Wafiq, 2007)

1- The absence of a pharmaceutical industry means importing and wasting a lot of currency. This means that the existence of this industry provides the state with billions that were spent on imports. In addition, importing the drug may mean that it is not available when it is constantly needed, that it is delayed in receiving it, and that its prices are high.
2- The existence of the pharmaceutical industry can lead to an industrial chain linking this industry with other industries such that its outputs are inputs to another industry or vice versa. This leads to the availability of raw materials for industries and the consequent development of the industrial sector in the country.
3- The pharmaceutical industry is essential, because it represents an important contribution to achieving pharmaceutical and health security. Likewise, the pharmaceutical industry achieves the societal security through local industries that are safe from foreign industries that may promote medicines with significant side effects, in addition to what we mentioned about providing foreign exchange as a result of dispensing with imports. It also is unrestricted for external pressures and influences.
4- The pharmaceutical industry is considered one of the profitable industries because it is a permanent, developed and continuously renewable industry and is subject to competition through the quality and efficiency of active materials and packaging methods.
5- Paying great attention to the pharmaceutical industry may contribute to increasing its share in the manufacturing industries, and then transforming it into important ranks that may reach the second place in terms of importance after oil. This will make it contribute significantly to the provision of cash revenue. Therefore, the pharmaceutical industry can contribute to the formation of cash revenues for the country. (Financial Supervision Bureau, 2018).

Third: The stages and forms of the pharmaceutical industry:

Stages of the drug industry: The pharmaceutical industry in general passes through many stages, which we can summarize as follows:

1- Research and development stage: This stage, in turn, includes three steps:

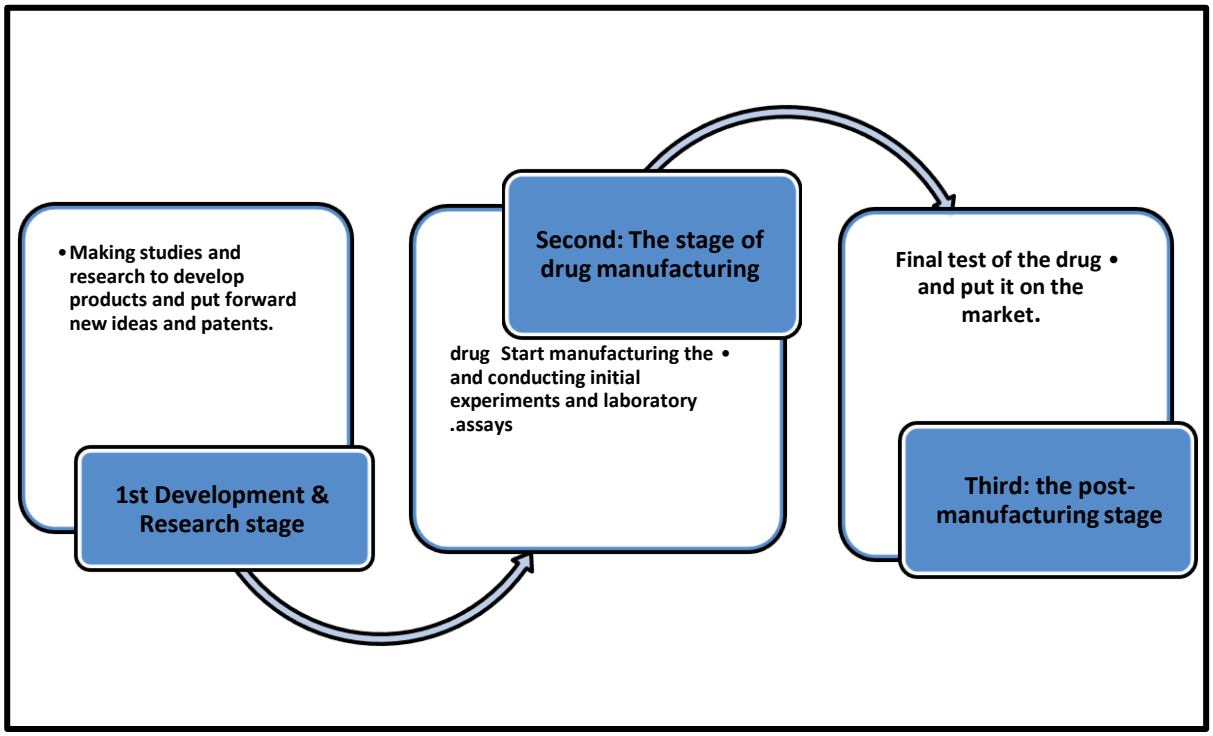
1- Conducting basic research for the medicinal product.
2- Conducting applied research for the product and the pharmaceutical composition.
3- Conducting experiments and developments on the pharmaceutical composition.

The first and second steps cost about 85% of the total drug production costs.

2- The stage of drug manufacturing: In this stage, the drug is manufactured from its natural or synthetic sources through the pharmaceutical composition that was completed in the first stage. Medicines are formed in different shapes and sizes such as syrup, tablets, capsules, injections...etc.

3- Post-manufacturing stage: After the drug is manufactured, final experiments are conducted on it and side effects are studied before it is put on the market, in addition to monitoring it when distributing and consuming it. It takes an average of 10 years to bring an effective and safe drug to market. (Central Agency for Public Mobilization and Statistics, 2016)

Figure (4) The stages of drug manufacturing



Source: The diagram was prepared by the researchers.

Pharmaceutical industry forms:

The pharmaceutical industry takes three main forms: (Central Agency for Public Mobilization and Statistics, 2016)

1- The real pharmaceutical industry: This industry is based on innovation through research and studies, and the acquisition of the right of ownership to monopolize this formulation through a patent, and it is produced and distributed by the company that holds the patent. These drugs require billions of dollars annually to develop and produce other varieties.
2- Simulation or pharmaceutical packaging industry: This industry depends on the manufacture of pharmaceutical compounds through obtaining permits from drug production companies and under their supervision. Developing countries are very distinguished by this industry.
3- The pharmaceutical research industry: This industry is considered one of the modern industries, and it is somewhat expensive. It is carried out in cooperation with drug research centers or universities, in order to shorten the effort and money.

The development of the pharmaceutical industry in Iraq: reality and challenges

First: A brief history:

Iraq is considered one of the pioneers in the pharmaceutical industry in the Arab area and the world, as it has been known since ancient times that the pharmaceutical industry had appeared in Mesopotamia approximately during the years (450-455 BC). The Arabs had a large and influential role in this industry. The first pharmacy for medicine also appeared in Baghdad during the year 766 AD. Medicinal drugs were sent to China, India, Africa and also to Europe.The pharmaceutical industry developed during the 20^{th} century, as QatrAlayin Company was the first factory for the manufacture of medicine in Iraq, which was established in 1920. Another company was established with the help of a Belgian company. In 1929, the first law to support and encourage industry was issued, followed by a new law in 1950 and it was amended in 1955, opening the door to concessions to encourage investors to introduce industry to Iraq. In 1956 the Iraqi National Factory was opened, with its invested capital (103,000 thousand dinars).

In 1958, production began in the Pharm Pharmaceutical Factory, whose invested capital amounted to (10,000 thousand dinars). Its name was later changed to Al-AfrahFactory, where production began in the Republican Factory in 1963 with a capital of (118,000 thousand dinars). In 1964, production began at Al-Razi Chemical Industries, with a capital of 55,000 thousand dinars. (Wafiq, 2007). In 1959-1960, Samarra Pharmaceutical Factory was established through an economic cooperation agreement that was held between the Iraqi government and the Soviet Union, which included granting Iraq a loan of (55 million rubles) at an interest of 2.5%, in order to

implement a number of industrial projects, including the establishment of the Samarra Pharmaceutical Factory. In 1971, Iraq began producing medicine in cooperation with major British, Italian and German companies. (Al-Hikma center, 2019)

This industry began to decline in Iraq during the successive years. Iraq is now considered one of the least spending countries within the same economic class on the pharmaceutical industry. Spending is 4.5% of GDP. Data announced by the World Health Organization showed that Iraq has spent less money in the last ten years than poor countries. The Iraqi per capita share was about 161 dollars of the total amount spent on average, while we noticed that the average per capita share reached 304 dollars in Jordan, as well as 649 dollars in Lebanon, which were economically poor countries when compared to Iraq.This has improved in the recent period through the high rate of growth in sales and the pharmaceutical industry. The value of the Iraqi market for the pharmaceutical industry is 3.5-4 billion dollars in the period 2018-2020, and it is in a state of continuous growth. Business Monitor International estimated that the growth rate of the pharmaceutical industry in Iraq is estimated at about 10-15% annually. The supply of medicines, medical supplies and laboratory equipment is supervised by the Kimadia Company, which is the general company for marketing medicines and medical supplies. This company has warehouses in Baghdad and in some provinces. (Jabir, 2021)

Second: Factors affecting the pharmaceutical industry in Iraq

There are several factors that in turn affect the development and size of the pharmaceutical industry in Iraq, including:

Population: The number of population is an important and essential factor to determine the volume of demand for goods, services and materials. Medicines are considered among the important and main materials due to their association with human health and their ability to perform their work and cure diseases. Therefore, it has a significant impact on the increase in drug consumption and through the evolution of the population during the years under study, as shown in Table No. (3). This means the high volume of demand and consumption of medicines and their medical supplies. We note a continuous increase in the population of Iraq during the years under study. The relationship between the number of population and the volume of demand is a direct relationship. (Wafiq, 2007)

Table (3) The population of Iraq during the years 2014-2021

Annual growth * average	No. of population	Year	No
-	33,157,061	2014	1
%6.19	35,212,600	2015	2
%2.72	36,169,123	2016	3
%2.68	37,139,519	2017	4
%2.65	38,124,182	2018	5
%2.63	39,127,900	2019	6
%2.61	40,150,200	2020	7
%2.59	41,190,700	2021	8

Source: The table was prepared by the two researchers, based on data from the Ministry of Planning, Central Bureau of Statistics.

*The growth rate was calculated by the researcher.

Through the above table, we note an increase in the population during the first five years by (5,443,818) persons with an increasing rate of growth, while we note a greater increase in the number during the recent years. During the last five years, the population has increased up to 6 million. That this rise in population numbers continues and at high growth rates. This means that drug consumption will rise accordingly. The level of health awareness: There is a direct relationship linking the level of health awareness to medicinal consumption. The higher the level of awareness, the higher the number of health buildings such as hospitals and health centers and the provision of preventive and curative services to individuals, and then the higher demand for medicine and medical supplies and vice versa. (Wafiq, 2007).

Research and development: The pharmaceutical industry relies heavily on research and studies and is an important factor for its development compared to other industries. Many companies and industrial establishments began to give a large and important space for research and studies, but of utmost importance in their work because of their importance in developing work fields, reducing costs and addressing deviations and problems that may appear during work. This requires financial specializations and experienced human cadres in addition to the appropriate technology, which gives it the competitive ability to develop treatments and manufacturing methods. (Shehab, et al, 2020)

Income: There is a relationship between income and medicine, the higher the income and the better the standard of living for the individual. This increased the individual's ability to take care of his

health through preventive therapies, in addition to the treatment of existing diseases. Although some treatments require their presence on a continuous basis regardless of income, especially chronic diseases medications, as shown in Table No. (4) the amount of national income and the average per capita share of national income (Wafiq, 2007).

Table No. (4) National Income and Average Per Capita Share of National Income for the Years (2014-2020)

Average per capita share of national income (thousand (dinars	National Income ((billion dinars	Years	No
6798.2	236708.0	2014	1
5269.4	185550.9	2015	2
5,153.5	186,397.3	2016	3
5695.4	211525.3	2017	4
5,711.7	217,753.9	2018	5
5739.6	224577.1	2019	6
6069.4	244200.0	2020	7

Source: The table was prepared by the researchers based on data from the Ministry of Planning, the Central Bureau of Statistics, and statistical indicators.

Drug prices: The pharmaceutical industries are affected by prices. Since most of the local companies do not produce pharmaceutical products for important and chronic diseases, which have the largest share in the market, such as cancer and diabetes medicines. The consumer is looking for alternative companies when he finds that their price is higher than his purchasing power, and then enter the state of competition between companies. (Suhour, 2003)

Third: The challenges facing the pharmaceutical industry in Iraq

The pharmaceutical industries in Iraq face a number of challenges that can be summarized as follows: (Hamid, 2004)

1- Absence of comprehensive planning for production operations in the future and determining the extent of the need to develop the industrial sector in general and the pharmaceutical industry in particular.
2- Challenges facing the marketing process: A large percentage of drug marketing does not go to consumers directly, but to doctors, because the patient often takes the drug based on the

doctor's prescription, who determines the quality of the drug. Sometimes, he/she even specifies the manufacturer of the drug.

3- The pharmaceutical industry is a capital-intensive industry that relies on advanced technology in addition to its heavy reliance on research and development and constantly changing technologies.

4- Opening the market to drug trade in general, with the absence of real control and the lack of coordination between the various parties, led to a decrease in the share of drug manufacturing companies at home, and thus reduced production quantities.

Fourth: Developments in the volume of pharmaceutical production in Iraq during the period (2014-2021)

According to the data on the pharmaceutical industry in Iraq, Baghdad governorate was ranked 1st of pharmaceutical factories with a percentage of (64.7%). The 3rdrankwas Salah Al-Din Governorate and Diyala with a percentage (11.7%) for each, whereas Nineveh and BabilGovernorateswere at (5.8%) for each. This distribution was due to government policies as well as personal decisions, availability of services and manpower, and commercial benefits. Public sector establishments achieved a rate of (17.6%) of the number of pharmaceutical industry establishments. The number of its employees were 3190 employees, making (59.5%) of the total number of employees in the pharmaceutical industries sector. Through table No. (5), we can determine the volume of demand for medicine in Iraq, as well as the volume of local production. (Wafiq, 2007)

Table No. (5) The volume of drug production and import in Iraq for the period (2014-2020)

No	Year	Percentage of local production	The amount of the displayed drugs. (pharmaceutical (unit	Pharmaceutical import ((pharmaceutical unit	Local pharmaceutical production (pharmaceutical (unit
1	2014	%70.5	2,820,387,706	831,706,693	1,988,681,013
2	2015	%38.5	961,197,703	591,471,937	369,725,766
3	2016	%16.1	1,764,245,188	1,480,933,486	283,311,702
4	2017	%68.5	659,072,084	207,828,545	451,243,539

5	**2018**	**%29.4**	**1,280,712,831**	**903,605,123**	**377,107,708**
6	**2019**	**%15.5**	**2,055,463,388**	**1,734,921,836**	**320,541,552**
7	**2020**	**%7.5**	**3,603,510,244**	**3,331,049,925**	**272,460,319**

Source: The table was prepared by the researchers based on Kimadia reports for the years (2014-2020).

We find that the production of medicine locally was (1,988,681,013) pharmaceutical units, then production have some fluctuations. The contribution of local production was (70%) of the total supply of medicine, but this contribution decreased to (16%) in 2016, as a result of the economic conditions and the lack of allocation and support that the pharmaceutical industry receives. We note this from Table No. (6) the amount of financial allocation for the purchase of medicines and the amount of contracts concluded with the private sector and the public sector for the years under study.

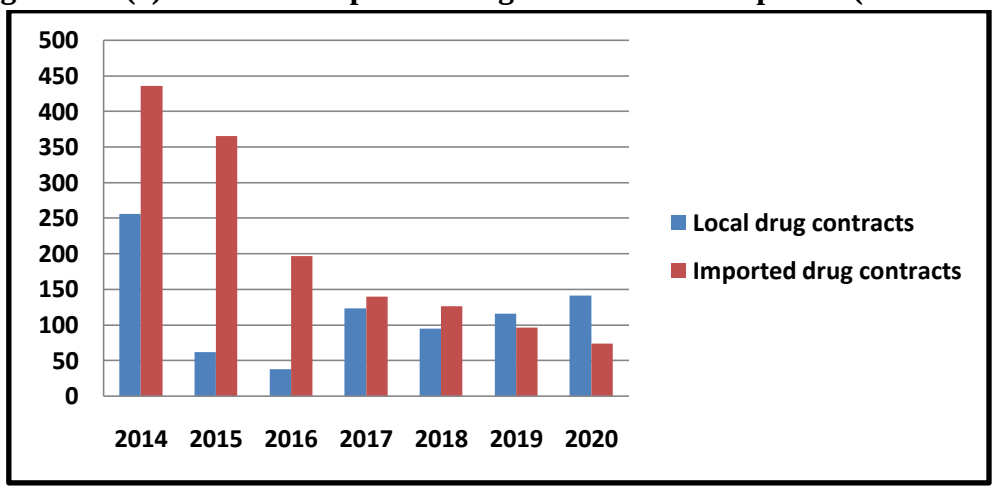
Table No. (6) Drug contracts with the public and private sector and the size of financial allocations for the purchase of medicines for the period (2014-2020)

No	Year	Amount financial allocation (for drug contracts dollars	Imported drug contracts	Local drug contracts
1	**2014**	**1,205,703,259**	**436**	**256**
2	**2015**	**1,193,795,025**	**366**	**62**
3	**2016**	**1,126,649,591**	**197**	**38**
4	**2017**	**643,715,565**	**140**	**124**
5	**2018**	**858,516,374**	**127**	**95**
6	**2019**	**824,175,719**	**97**	**116**
7	**2020**	**791,208,690**	**74**	**142**

Source: The table was prepared by the researchers based on Kimadia data for the years (2014 - 2020).

We note that the amounts allocated for the purchase of medicines from the Ministry of Health exceeded one billion dollars in 2014, but this amount began to gradually decline to reach (643) million dollars only in 2017. The decrease in the amounts continued in recent years, despite its increase in 2018, but it declined in the following years to (791) million dollarsin 2020.The contracts of the Ministry of Health with local pharmaceutical companies amounted to (256) contracts in 2014. We see that the least contracts signed with local pharmaceutical companies were in 2016, as they amounted to (38) contracts only, as shown in Figure (5).

Figure No. (5) Local and imported drug contracts for the period (2014 - 2020)



Source: The chart was prepared by the researchers based on the data of Table No. (6)

Many pharmaceutical companies have been established in Iraq, including public and private. A group of these companies are mentioned in Table No. (7):

Table No. (7) pharmaceutical companies in Iraq

Statement	Project location	No. employees	Invested capital	Year of establishment	Sector
The Iraqi Factory for Pharmaceuticals (IPI)	**Baghdad**	**94**	**2.047.500.000**	**1954**	**Private**
Al-Mashat Factory for Pharmaceutical Industry	**Baghdad**	**12**	**250.000.000**	**1960**	**General**
The General Company for the Manufacturing of Pharmaceuticals and Medical Appliances in Samarra (SDI)	**Saladin**	**2054**	**45.000.000.000**	**1961**	**General**
Al-Nahrain Pharmaceutical Industry Co., Ltd.	**Baghdad**	**30**	**2.250.000.000**	**1973**	**Private**
Al-Kindi for the production of veterinary vaccines and medicines	**Baghdad**	**130**	**120.000.000**	**1989**	**Private**
Middle Factory for Pharmaceutical Industry Co., Ltd.	**Baghdad**	**45**	**2.000.000.000**	**1990**	**Private**
The Arab company for the manufacture of antibiotics and its supplies (AKAI)	**Baghdad**	**230**	**32.000.000**	**1990**	**Private**
The General Company for Pharmaceutical Industry and	**Nineveh**	**969**	**2.000.000.000**	**1994**	**General**

Medical Appliances in Nineveh Governorate (NDI)					
Wadi Al-Rafidain Factory for Pharmaceutical Industries	**Baghdad**	**17**	**750.000.000**	**1995**	**Private**
Al-Furat Pharmaceutical Factory	**Baghdad**	**41**	**120.000.000**	**1996**	**Private**
A'Saffa for the production of human and veterinary medicines	**Diyala**	**30**	**150.000.000**	**1996**	**Private**
Al-Shifaa for the production of medicines and medical supplies	**Baghdad**	**90**	**9.000.000.000**	**1996**	**Private**
Arab medicine lab	**Baghdad**	**8**	**250.000.000**	**2003**	**Private**
Dijla Pharmaceutical Company Ltd.	**Babylon**	**36**	**-**	**2004**	**Private**
Al-Kindi for the manufacture of medicines and medical supplies	**Diyala**	**11**	**375.000.000**	**2004**	**Private**

Source: The table was prepared by the researchers based on industrial survey data for pharmaceutical industrial establishments.

Fifth: A future view of the pharmaceutical industry in Iraq:

The pharmaceutical industry is of great importance due to its financial returns and rapid growth, in addition to its importance in achieving drug security. The pharmaceutical industry is considered a very developed industry and does not stop under any circumstances because the demand for medicine is constantly increasing due to the high population growth in general and because of the large number of epidemics, diseases and wars. Therefore, the interest in the pharmaceutical industry in Iraq is of great importance, so the state must provide all adequate support and facilities to the pharmaceutical companies operating in Iraq. In addition, national laboratories should be established with the task of discovering new therapeutic formulations in addition to their work in examining therapeutic formulations produced by companies. If the state pays attention to this industry, it will contribute to the national product and provide hard currency that is exported outside Iraq to buy medicines, even simple ones, in addition to providing job opportunities for the workforce.After Corona pandemic, several countries turned to the pharmaceutical industry because it is of great importance and because it is the only industry that did not stop during the pandemic period, unlike all other industries that stopped and led to industrial and economic paralysis. In addition, the various industries have started to have a decrease in demand, so the pharmaceutical industry is considered an important resource in addition to its health and national security importance.

Conclusions

1- Imposing low prices by the Ministry of Health on the companies, as the pharmaceutical marketing company adopts speculative costs determined by the Ministry of Health which are nonnegotiable. In most cases, these prices are low, where in the case of negotiation about the price, the referred contracts will be canceled. As a result, the economic unit has to accept small profits to obtain referrals for drug contracts for business continuity.
2- Lack of interest by pharmaceutical companies in Iraq in the research and development process, when compared to their peers in other countries.
3- Most companies depend almost entirely on contracts referred by the Ministry of Health. This has led to a decrease in their productivity and revenues due to the decrease in contracts referred by the Ministry of Health resulting from the lack of government allocations.
4- The impact of the health and security conditions and the state of instability that the country has witnessed on the performance of pharmaceutical companies and investments in general.
5- Lack of support from the state for pharmaceutical industry projects in particular and the industry in general. The outside competition is severe, or rather, the importer cannot compete. Thus, it will lead to a loss, in addition to the increase in the tax rate imposed by reducing the percentage of allowances granted by the General Tax Authority, which in turn affects the profits and burdens the unit.
6- The lack of financial allocation with the appropriate funds to purchase medicine and conduct government contracts has led to a lack of contract referrals in recent years to pharmaceutical manufacturers.

Recommendations

1- It is to attention and emphasis on increasing the worker’s efficiency in the pharmaceutical industry by constantly training and qualifying them to keep pace with developments and updates in work mechanisms.
2- Paying more attention to research and development and allocating larger amounts of money to reach new products and marketing methods that enable companies to obtain a larger amount of contracts to acquire a larger market share.
3- Emphasizing the need to carry out follow-up and performance evaluation to know the deviations and problems that companies face while working to implement the set goals.

4- Getting benefits from foreign expertise in the pharmaceutical industry through the assistance of a major company to benefit from its expertise in developing the pharmaceutical industry in Iraq.
5- Reducing the taxes and raising customs duties on materials used in the manufacture of medicine, in addition to other machinery and equipment.

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