






# Dietary Supplements Market Size Analysis in Iran From 2011 to 2015



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## ABSTRACT

**Background:** Dietary Supplement (DS) is a manufactured preparation intended to supplement the diet; unlike medications, they are not intended to diagnose, treat or cure disease. Iran's Food and Drug Administration (FDA) has been collecting sales data from distribution companies. This datasheet is a remarkable source for the market analysis of medicines and dietary supplements. No study exists on the state of the market for dietary supplements in Iran. Our study attempted to address this issue and the related challenges in this area.

**Methods:** The data of this study was derived from the official statistical sales data of dietary supplements compiled by the FDA in 2015, as well as a statistical dataset of dietary supplements managed by Iranian dietary supplementary manufactures syndicate in 2011-2015.

**Results:** Dietary supplements market in 2015 included over 1380 products. Nutritional baby formula has assigned the largest share by value, followed by general tonics and dietary supplements for anemia. Adults and children are the greatest consumer groups. The 4-year period analysis suggested growth in the different sections of the market.

**Conclusion:** DS market in Iran is experiencing significant growth, both by value and volume. The per capita expenditure of DSs in Iran is lower than the global average. This could be due to the lower price of the locally produced supplements, in comparison with the imported branded ones, as well as the lack of awareness of the general population about the specialized products. The economic sanctions of Iran and unsustainable policies of the Iranian FDA regarding the licensing and importation of the dietary supplements, also the allocation of subsidized foreign exchange for the production of those are the challenges of this market.

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## 1. Introduction

**D**ietary supplements are consumed orally; unlike medicines, they are not intended to treat, diagnose or cure diseases, but help improve the dietary value and, in fact, supplement individuals' diet [1, 2]. These products can be both a combination of vitamins, minerals, plants, amino acids, and a substance to improve nutritional value; they also have a fixed and measurable formulation [1]. With the approval of the 1994 Dietary Supplement Health and Education Act (DSHEA) law in the USA, the conditions for the admission of Dietary Supplements (DS) to the market were facilitated [3].

In Iran, the Administration of Natural and Dietary Supplement Products affiliated to the Iranian Food and Drug Administration (IFDA) (in short referred to as 'Supplementary Administration') is the principal control authority of production, import, and the enforcement of relevant laws and marketing authorization in this area. In addition to the registration of the dietary supplements, the administration monitors natural and traditional products and infant formulas in the market [4]. In 1981, the administration began its activity on herbal products. Eventually, its name was changed to the administration of natural and traditional products and dietary supplements in 2013 [4]. According to the food supplement registration regulations, the supplements are only distributed by the companies authorized by the Food and Drug Administration (FDA). The supplements are only provided by pharmacies to the customers and without the need for a prescription [5].

Iranian Dietary Supplementary Manufactures Syndicate (IDSMS) and the Syndicate of Iranian Food Supplements Importers (SIFSI) are two syndicates that have published sales information relative to their own member firms in recent years [6, 7]. Over three decades, the IFDA has been collecting pharmaceutical sales data from pharmaceutical distribution companies to pharmacies, called statistical datasheet [8]. In recent years, the IFDA has been collecting sales data on DS, too.

Various studies in Iran have applied the dataset to analyze the market situation and assess the pharmaceutical industry status [9, 10]. However, no detailed study exists on the market of DS in Iran using the aforementioned dataset to survey challenges in the area. The reference for collecting sales data of pharmaceutical and supplemental products is the IFDA. Therefore, we used this data to provide an overall assessment of the DS market in Iran. The current study aimed to

evaluate the market size of dietary products in certain categories. We attempted to provide a comprehensive view of the industry and the DS market, as well as an applied analysis of it. We also evaluated domestic production share in the market and Iranian per capita DS consumption due to its importance for the policymakers and relative experts in the industry.

## 2. Methods

The data of this study was derived from the official sales data of DS compiled by the IFDA in 2015, as well as the sales datasheet of DS managed by IDSMS in 2011-2015 [7, 11]. The IFDA dataset contains sales information from distribution companies to pharmacies. Moreover, the IDSMS dataset contains sales information from manufacturing companies to distribution companies.

The IFDA statistical dataset contains information such as the product's name, dosage form, license holder (manufacturer/ importer), distributor, sale by volume, and sale by value in Rial (IRR) from distributor companies to the pharmacies. In addition, the IDSMS datasheet includes information on the product's name, dosage form, license holder (manufacturer), distributor, sales by value and volume from manufacturing companies to distributor companies as well as product group based on application and ingredients. We reviewed and cleaned the data of IFDA datasheet and according to the product's name information. Then, information such as application classification, ingredient based classification, and the brand name was added to the dataset.

The IFDA dataset was studied from three general perspectives due to product comprehensiveness, considering the data of imported and manufactured products, and its close proximity to consumption data; studying the major market sectors (including vitamins and minerals, herbal products, probiotic products, sport supplements, and infant formulas), studying product in terms of application (Table 1), and the consumers of dietary supplements (Table 2). Additionally, IDSMS dataset was used to examine the 4-year trend of changes in overall market size, dosage forms, application classification, and ingredients. Microsoft Excel 2007 software was used to analyze the obtained data. The market value is expressed in US dollars (based on the currency exchange rate per year, and according to the Central Bank of the Islamic Republic of Iran).

### 3. Results

#### Market overview

DS market size in 2015 was >18,150 billion IRR and equivalent to US\$613 million. The DS market value excluding nutritional baby formula products was about 12,567 billion IRR equivalent to US\$424 million (according to the Central Bank of the Islamic Republic of Iran).

According to the FDA datasheet, more than 1380 different DSs (with respect to a separate dosage form, the manufacturer, and the infant formulas) are observed in the Iranian market. There are about 170 active manufacturing and importing companies in the entire DS market in Iran (62 producers, 66 importers, and 41 companies active in both fields). There are 51 distribution companies that provide products to the pharmacies.

#### Market share

#### Product type

The group of vitamins and minerals contains vitamins, minerals, and multivitamins along with minerals. The value share of each of these sectors out of the total value of the Iranian DS market in this year is 6.5%, 1.7% and 36.8% respectively; it is totally equivalent to 45% of the total market share. The value share of herbal products, probiotic products, sports supplements, and infant formulas is 11.1%, 1.6%, 0.3%, and

33.2%, respectively. Furthermore, the share of other products including omega-3, glucosamine and CoQ10 products is 7.8%.

#### Application grouping

The share of the most important groups in the market based on their application is presented in Table 1. General enhancers, supplemental products for anemia, and DS for improving cartilage and joint function with the share of 16.7%, 15.0% and 14.1% by value, have the largest share of the market, respectively.

#### Market share based on consumer groups

Based on consumer targets, the largest market share is related to the adult group (50.0%); consequently, children's products (41.0%), infant products (5.9%), and the general group (3.0%) have the largest market shares. The other group holds <1% of market share (Table 2).

#### Market size

According to the IDSMS dataset (domestic production), the Compound Annual Growth Rate (CAGR) of supplemental products between 2011 and 2015, is 61.4% (based on IRR) and is 25.9% (based on US\$), (Figure 1). The total value of supplemental products manufactured in 2015 exceeds US\$143 million.

Table 1. Most important groups by the application in the DS market of Iran

Group	Products	Market Share by Value (%)
General tonic products	Multi-Vitamin, B-complex, and herbal products like ginseng and royal jelly	16.7
DS for anemia	Iron, Folic acid	15.0
DS for improving cartilage and joint function	Glucosamine, MSM, chondroitin, hyaluronic acid, herbal supplements including soybean and avocado extracts	14.1
DS for compensating calcium deficiency	Calcium, vitamin D	11.9
DS for improving immunity	Vitamins C&E, other products claiming the title	6.6
DS for improving the growth and immunity of Children	Multivitamin, zinc, royal jelly, Omega-3 in the form of syrup	5.3
DS for skin, hair, and nail	Zinc, biotin, products claiming the title	4.8
DS for improving cardiac function	Omega-3, Q-10, garlic, other products claiming the title	4.8
	Total	79.2

**Table 2.** Special intended consumer groups (total dietary supplement and nutraceutical market)

Group	Properties (y)	Products	Market Share (%)
Infants	<1	Multivitamin, iron, A+D in the form of drop	5.9
Children	>1	DS in the form of syrup- some other products intended for children, nutritional Baby formula and auxiliary food	41.0
Adults	>12	All the other products not intended for adult men or women	50.0
Geriatrics	>50	Multivitamin and probiotic for geriatrics	<0.1
General	Not intended for special age or gender group	Mostly effervescent and chewable products	3.0



## 4. Discussion

### The perspective of Iranian DS market

The market value of DSs and baby nutrition sector in Iran in 2015 was equal to US\$424.2 million and US\$188.8 million, respectively, which totally exceeded US\$613 million. According to the statistics, the global market of dietary supplements in 2015 was more than US\$91.546 billion which accounts for US\$12.4 per capita; the baby food market was more than US\$53 billion, which altogether, it is about US\$ 145 billion [12, 13]. Therefore, Iranian per capita consumption of DS in 2015 has been US\$5.3 which is much lower than the global average (US\$12.4).

Iran pharmaceutical expenditure per capita in 2015 has been US\$59 [14]; this indicates a more than 10 times expenditure on pharmaceuticals, rather than expenditure on DS in Iran. Recently (in 2018) the Iranian FDA has defined foreign exchange capitation on the import license of each product. On the other hand, because of the sanctions, the subsidized exchange is not allocated to the import of raw materials used for

the local production of DSs. It is expected that these new IFDA policies reduce the high growth rate of the DS market.

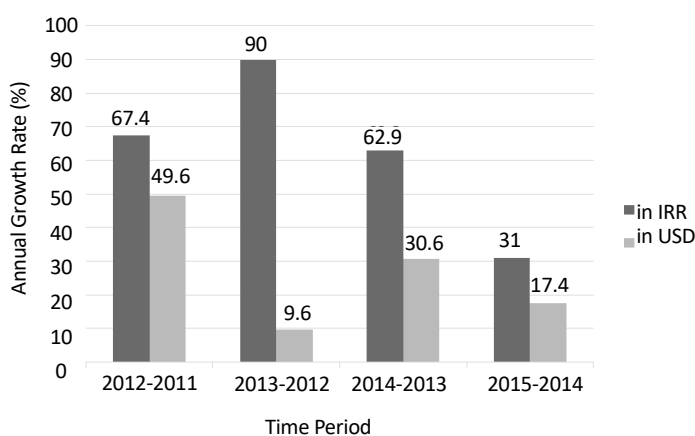
### Production sector

While domestic products dominate the market by volume (about 70%), their value is less than half (43%) of the market share. This demonstrates that most of the dietary supplements are domestically produced in Iran, with a much lower price, in comparison with the imported branded ones. It also suggests that a large proportion of consumers in Iran use manufactured products; however, imported products are more expensive and can be of great importance from the viewpoint of supplier and producer companies.

### Notable sections of the market

#### DSs for infants

As mentioned, infants and children, with a total value of about 47%, have a special market share. The most important reasons for being interested in these prod-



**Figure 1.** Annual growth rate (%) by value (in IRR & US\$; based on the Central Bank of Iran)



ucts are as follows: Iranian young population, governmental policies for encouraging the population, providing information on the importance of supplementary foods on the health of children and infants, and encouraging healthcare centers to promote consuming complementary products, and the industry interest in these products.

### Notable application groups

Concerns about anemia, especially in women, as well as increased knowledge on the need for the prevention of osteoporosis have made iron and calcium products remarkable in market groups. More than 30% of the total market value is related to infant formula products. In addition, products containing vitamins and minerals account for more than 45% of the market share.

### Growing market sectors

Although vitamin and mineral products are still the most significant DSs in Iran, the growth of herbal and probiotic products in the Iranian market is significant. Probiotics have entered the Iranian market in recent years, which were initially imported [15]. In addition, the groups with the highest growth in the domestic market are the supplements mostly consumed by athletes.

### Consumer behavior

Studies have been conducted in different countries and sometimes at the national level on consumer behavior. In a study on academic populations in Australia, 69% of the population reported consuming vitamins or minerals and 63% used other types of DSs [16]. In this study, the reason for the consumption of many products was close to the market claim of the product [16].

According to the Australian Health Survey on Food and Nutrition section in 2011-2012, 29% of Australians stated that they consumed at least one DS [17]. In the National Health and Nutrition Examination Survey (NHANES), half of the population used at least one DS between 2003 and 2006 [18]. We found that between 28% and 30% of consumers used one of the products containing B6, B12, vitamin C and vitamin E, and between 18% and 19% used the products containing iron, magnesium, selenium, and chromium [18].

Dutch National Food Consumption Survey (DNFCS) reported that the number of supplemental users increased from 17.2% in 1987-1988 to 27.2% in 2003.

The most prominent products in these studies were vitamin A, vitamin A+D, vitamin B complex, vitamin C, vitamin E, multivitamin, calcium+vitamin D, calcium, iron, garlic, and lecithin [19]. In Iran, studies have also been conducted on the consumption rate of DSs and their causes. A study was conducted on the consumption rate of supplements in active athletes in bodybuilding clubs in Kerman. They concluded that half of the studied population consumed at least one DS. This rate was 48.7% for men and 4.6% for women, which revealed male athletes consumed more DSs than female athletes [20].

The increasing awareness of the mother and children's health, along with increasing population and childbearing policies are among the most important and influential factors in the use of supplements in Iran. In addition, the raising public awareness of health and preventive approaches, as well as the desire of many young people to work out and consume supplements can also be key drivers of supplement consumption in Iran. Moreover, in Iran, as in the rest of the world, the orientation of companies and consumers from a particular substance (such as a vitamin) has led to products with a specific application. In contrast, it seems that two major drivers in the global markets, namely, many sales channels (especially online sales) and aging population are not affecting the supplement market in Iran, but have the potential for growth in the coming years [21].

To more accurately illustrate the supplement consumption in Iran, surveys can be conducted at national or urban levels and in places such as sports clubs, pharmacies, healthcare centers and universities. Such data may provide a better understanding of the factors affecting supplements consumption, as well as the obstacles faced in Iran in respect of factors such as age, gender, educational level, awareness, income level, welfare, and professionalism.

The sales information for supplements in 2015 was well-integrated and includes even large amounts of baby food and infant formulas. However, the sales information of sports DSs is far from reality. The sales information on sports supplements in pharmacies is not complete and does not include the entire sale size of these products at pharmacies. In addition, the dataset does not include the sales data of DSs through bodybuilding clubs and sports nutrition stores. One of the challenges of this study was the standard classification of all application-based products in the market. From

this perspective, the products were classified based on ingredient and consumer, in addition to the application.

## 5. Conclusion

Iranian DS market is growing in various sectors, which of course requires further investigations. However, the per capita expenditure of DSs in Iran (US\$7.72) is about 60% of the global average. This could be due to the lower price of the locally produced supplements, in comparison with the imported branded ones, as well as the lack of awareness of the general population about the specialized products. The economic sanctions of Iran and unsustainable policies of the Iranian FDA regarding the licensing and importation of the dietary supplements, also the allocation of subsidized foreign exchange for the production of them are the challenges to this market.

## Ethical Considerations

### Compliance with ethical guidelines

The data gathered from IDSMS and IFDA analyzed honestly without changing the sales data or other product information and classified under the supervision of experts and academics in the field.

### Funding

The present paper was extracted from a master thesis in Tehran University of Medical Sciences in 2018.

### Authors' contributions

Conceiving and implementing the strategy, performing data analysis: Amirhossein Ghazizadeh Khosroshahi; Drafting the paper: Amirhossein Ghazizadeh Khosroshahi, Parisa Saiyarsarai; Reviewing the results of analyzed data: Parisa Saiyarsarai; Finalizing the data analysis methodology and adjusting it with practical experiences: Alireza Yektadoost; Revising the strategy of study, supervising the project, finalizing the manuscript: Abbas Kebriaeezadeh; Pre-processing the data and finalizing the method: Akbar Abdollahi Asl, Amirhossein Jamshidi; and Designing and preparing the manuscript, Reading and approving the final manuscript: All authors.

### Conflict of interest

The authors declared no conflict of interest.

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