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The Role of National Sectors in Food and Nutrition Security: The Experience of the Islamic Republic of Iran

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ABSTRACT

Background: Solving the problem of food and nutrition security requires the integration of various sectors of the society. Determining the role of each sector in promoting people's health has presented intersectoral collaboration and transformed the theory of social health determinant approach into action. In this study, with a new approach, and in regards, the national organizations responsible for food and nutrition security have been classified and the role of each has been identified as functions and responsibilities. **Methods:** This qualitative study was conducted by studying the documents and programs related to food and nutrition security, as well as semi-structured interviews and focused group discussion with two groups, including experts and executives. To determine the role of organizations, the food supply chain was used. **Results:** According to the food chain, organizations responsible for food and nutrition security in Iran can be divided into three categories: 1. Responsible governance in the economic, political, social, technological, international, and environmental changes affecting food and nutrition security, 2. Responsible governance in the main process of food and nutrition security 3. Supportive sectors and systems for food and nutrition security. Generally speaking, it appears that the government responsible for the main process of food and nutrition security are made up of institutions responsible for providing adequate food, responsible governance for food safety, and responsible governance in the field of nutrition and body consumption. **Conclusion:** The findings of this study aimed to explain the expectations and responsibilities of ministries and organizations responsible for food and nutrition security.

Keywords: *Food, Nutrition security; Intersectoral collaboration*

Introduction

Food security and nutrition security, which are two different complementary terms, have been introduced by the social determinates of health (SDH) commission as one of the social determinants of health (Solar and Irwin, 2006). The concept of food security is very broad and is determined by the interaction of a variety of biological, economic, social, agricultural, and

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physical factors. Food security requires sufficient food supply at a macro level and fair distribution for access by everyone and its specific components include: food availability, food accessibility, and utilization (Pinstrup-Andersen, 2009).

Solving the problem of food and nutrition security requires integrated collaboration of various sectors of the society, such as health professionals, agricultural experts, food industry experts, policymakers, and researchers (Hammond and Dubé, 2012). Determining the role of each sector in promoting people's health has presented intersectoral collaboration and transformed the social health component approach from theory to action (Demari, 2015). For example, the government of Kenya acknowledges that the problem of poverty, hunger, low levels of health in the society, and social and economic inequalities are interrelated and to ensure that health problems are addressed, particularly in vulnerable groups, intersectoral collaboration is important to formulate health-related policies (World Health Organization, 2013).

According to the study of SAMPAT in 2011, 14 Iranian provinces are related to as very unsecure areas (**Table 1**) (Kolahdooz and Najafi, 2015); according to the census of 2011, about 26.5 million people, with the prospect of the national document of food and nutrition security, the organizations responsible for food and nutrition security of the country can improve the fair physical and economic access to food, indicators of malnutrition, and its consequences by the end of 2020, by institutionalizing intersectoral collaboration and participation of people, while placing all the provinces of the country in a favorable situation for food and nutrition security, raising the country's rank in the region. Therefore, the purpose of this study was to determine and categorize the sectors involved in food and nutrition security of the country with a new approach to the food chain and analysis of the responsibilities and functions of the main organizations responsible in the food and nutrition security of the country. The most important perspective is that all decision-makers and key participants should be aware of the effects of their function on food and nutrition security before implementing a policy or decision and prioritize this issue and, if necessary, review their decision.

Materials and Methods

The research was a qualitative study; for collecting the data required , a total of three methods was used, including interviewing executives, focused discussion with experts, and, finally, reviewing sources and official documents.

In the first step, the food supply chain was drawn up in the country (**Figure 1**). After introducing the concept of the food chain in this study, executive directors, and experts were asked to complete a questionnaire consisting of three questions, as follows. (It has to be noted that the interviewer was familiar with the principles of interviewing and the nutrition principles of the society)

Question one: Which national sectors are involved in food chain?

Question two: What are the functions of these sectors?

Question three: What are the interventions for improvement of food security of the sectors mentioned in the previous question?

Notably, experts were knowledgeable persons in food and nutrition security with PhD of nutrition or epidemiology of nutrition, or specialized medical health doctors and included two faculty members of Nutrition and Dietetics School of Tehran University in the Medical Sciences, and one professor of Nutrition and Food Research Institute of Iran, one from the Institute of Health Research and Development, and two members of the Iranian Academy of Medical Sciences and executive directors, including representatives of the sectors identified in the food chain.

In the next step, by referring to the reference policy documents (including the principles of the development plan, the principles of organizations' formation, executive organizations, and other applicable laws), as well as electronic websites of the sectors (including annual reports and documentations, performance reports, national plans and programs), and also, other published and available documentations for the key functions of

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each organization in the field of food and nutrition security were identified.

The country's food and nutrition programs (partly sustainable food provision programs) were analyzed through interviews with the director and experts of Nutrition Improvement office.

Results

Based on the food chain, the organizations responsible for food and nutrition security can be divided into three categories, according to the organizational mission and the role they can play in its provision:

1.The responsible authorities in the economic, political, social, technology, international, and environmental changes effective on nutrition and food Security.

2.Governments responsible for the main process of nutrition and food security.

3.Supportive systems for nutrition and food security (**Table 2**).

This classification is important because monitoring of the intersectoral collaboration should be performed between the main authorities responsible in the field of nutrition and food security and in case of major effects on it or need for further support, the help of other organizations' should be sought. Undoubtedly, the government and senior officials of the country are the main custodians in formulating, supporting, communicating, and monitoring food and nutrition policies in the country.

Based on the food chain (**Figure 1**), and definition of food and agricultural organizations, food security can be addressed in three areas:

1. Sustainable food supply
2. Food safety
3. Providing body health or benefits of nutrition

According to this category, after completing the questionnaires and reviewing legal documents, it seemed that 9 sectors contribute to the food security in Iran. The Ministry of Jihad-Agriculture and the Ministry of Mines and Industry are involved in the food supply chain in Iran, including planning and policy-making for sustainability of production, until establishing a system for monitoring and fixing prices. Also, in the field of food safety, from monitoring to standardization, these three food and drug organizations (including affiliated laboratories) namely, the Organization of National Iranian Standards, Center for Health Works and Environment, according to the health vice-chancellor; monitoring food production is their responsibility. There are four sectors active in the field of nutrition in Iran, including the Office of Community Nutrition Improvement,, Health Vice-chancellor, the Ministry of Development of Education and Management, the Ministry of Health and Medical Education. The functions and key responsibilities of each sector are listed in **Table 3**.

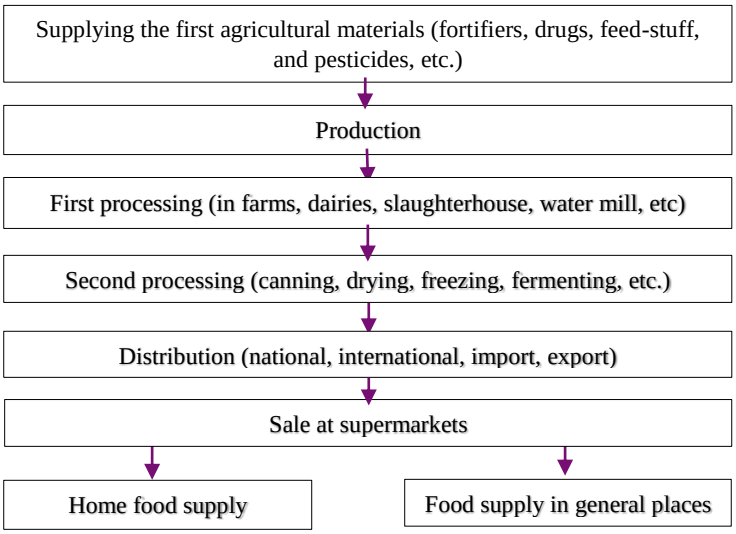


Figure 1. Food chain supply in Iran

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Table 1. Food security status of provinces in Iran

Food security status	Provinces
Very secure	Qom, Isfahan, Semnan, Tehran, Yazd
Secure	East Azarbaijan, Qazvin, Mazandaran
Relatively secure	Zanjan, West Azarbaijan, Khorasan Razavi, North Khorasan, Markazi, Hamedan, Golestan, Gilan
Relatively unsecure	Ardebil, Chaharmahal and Bakhtiari, Fars, Kermanshah, Kurdistan, Lorestan, South Khorasan
Unsecure	Khuzestan, Kerman, Ilam, Bushehr
Very unsecure	Hormozgan, Kohkiluyeh and Boyer Ahmad, Sistan and Baluchestan

Table 2. Types of sectors responsible for food and nutrition security in Iran

Sectors' types		Sectors' names
Governance responsible for economic, political, social, technological, international, and environmental changes		Islamic Consultative Council Expediency Council Ministry of Economy and Finance (including customs) Ministry of Foreign Affairs Organization of the Environment Ministry of Works and Social Welfare Deputy of Planning and Applied Control for the President (including municipalities, and governors) Organization of Targeted Subsidies Supreme Safety Council of the Country Organization of Country's Inspection High Council of Research and Technology Science (known as ATF Council) Ministry of Health and Medical Education (MOHME) Ministry of Agriculture
Responsible governance in the main process of nutrition and food safety	Sustainable food supply	Ministry of Agriculture (including the Veterinary Organization, and Fisheries Organization) Ministry of Industry, Mine, and Trade
	Food safety	Food and Drug Organization National Standards Organization Center for Health, Work, and Environment at the Health Vice-chancellor of MOHME Plant Protection Organization (Ministry of Jihad-Agriculture) Veterinary Organization (Ministry of Jihad-Agriculture)
	Nutrition	Bureau of Nutrition Improvement at the Health Vice-chancellor Deputy of treatment of MOHME Deputy of Education of MOHME Deputy of Management Development and Resources of MOHME

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Supportive sectors and systems for nutrition and food safety	Supportive sectors	Anti-Smuggling Headquarters and the Police Force Ministry of Justice (Government Organization) Ministry of Culture and Islamic Guidance Ministry of Education Organization of Literacy Media Organization Imam Khomeini Relief Committee Ministry of Energy (Healthy Water Supply for Agriculture) Prisons Organization Welfare Organization Crisis Management Organization The Ministry of Work and Social Welfare (as an annual budget allocator for malnutrition reduction) Deputy of Strategic Planning and Supervision of the President (Adoption and Modification of Pricing) Ministry of the Country Islamic Consultative Assembly and Judiciary
	Production, distribution and sales networks	The Country's Food Industry Associations Food Industry and Food Production Associations Supreme Import Board (Food Importers) The Central Union for Monitoring and Coordination of Food Producers (Farmers and veterans) Union of Food Transportation Companies Commerce and Ministry of Mining and Industry (stock regulation of main materials and excellent supervision over distribution and trade unions, including production and distribution, companies and large and chained stores of distribution)
	Educational, research, counseling, and advocacy networks	Ministry of Science, Research, and Technology Statistics Center of Iran Agricultural Engineering Organization Institute for Trade Studies and Research and the Research Institute of Cereals and Bread Veterinary Organization Medical Council Institute of Nutrition Research and Food Industry of the Country School of Nutrition and Food Industry Related research centers Center for Strategic Research of the Expediency Council Islamic Consultative Research Center Research Institute of Planning Agricultural Economics and Rural Studies Scientific Associations Related to Food, Nutrition, and Food Industry Knowledge-Based Companies Representative Regional Office of WHO in the Mediterranean UNICEF FAO and WFP representative office in Iran
	Consumers	Association for Protection of Consumers and Manufacturers Islamic Urban and Rural Councils Non-governmental organizations (NGOs), particularly Association for the Protection of Consumers' Rights

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Table 3. Functions and responsibilities of the government responsible for the main process of nutrition and food security in Iran

Area	Sector	Function	Responsibilities
Sustainable Food Supply	Ministry of Agriculture, including Veterinary Organization, Fisheries, and the Organization for Plant Protection	Planning and policy-making for sustainability of production Improvement of Agricultural Research	Increasing productivity factors, reduction and optimal management of agricultural wastes Adequate and timely agricultural inputs Promotion of agricultural knowledge and production methods Increasing awareness and utilization of knowledge in the agricultural sector Sustainable use of basic resources in the agricultural sector Identifying the optimal cropping pattern and creating agricultural production poles
		Planning and policy making to improve the quality and safety of agricultural products	Establishing a system for monitoring and controlling the quality of agricultural products Increase the fertility of the country's soil Improve agricultural research and promote the use of research findings in agriculture
	Ministry of Industry, Mine and Trade	Reviewing policies and market regulation procedures in line with food and nutrition security policies	Establishing a monitoring system for fixing the food prices or reducing the fluctuations Developing and equipping food chain supply, in particular creating appropriate access for consumers Collaborating in development of national food standards based on international standards Access to new technology in the food industry Co-ordination with the Vice-chancellor of Health in implementing health protocols, with particular emphasis on the need for export-import management approach by this Ministry Provision and production of Permix needed for enrichment of the country's food with the right price and quality Control of food products entering the country illegally Set up and upgrading the system and strengthening the monitoring and control of food imports and raw materials used in the food industry
Food safety	Food and Drug Organization (including affiliated laboratories)	Food and beverages monitoring	Scientific examination and issuance of health permits for the production and import of foods and beverages Educate and encourage the use of food and beverage safety management systems Considering people's complaints against Food and beverage products Scientific review of food and beverage additives and reduction of risk factors Application of food labeling program based on existing criteria
	National Standard Organization of Iran	Training and promoting the standardization of food chain and nutrition in production units and at community level	Monitoring the production and supply of food products Reducing the food safety hazards (including determining the limits for pesticides, and heavy metals) The control and monitoring transgenic, complementary, healthy, and organic foods, as well as development and revision of new national standards for food products

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	Center of Health, Work , and Environment at Health vice-chancellor of MOHME	Supervising centers for the supply and distribution of food and beverages	Healthy and safe food supply (provision of healthy and safe food for public places for different groups of people
	Plant Protection Organization (Ministry of Agricultural Jihad)	Planning and policy development to improve the quality and ensuring the health of agricultural products (determining maximum residuals)	Decrease and optimize the use of chemical inputs in the agricultural sector Developing and implementing standards in the agricultural sector
	Veterinary Organization (Ministry of Agricultural Jihad)	Monitoring the safety of raw animal food	
Nutrition	Bureau of Nutrition Improvement in the Health vice-chancellor	Education, culturing, and increasing nutritional literacy of the society	Nutritional health from the beginning of life Local and regional empowerment in the field of healthy eating habits Educating nutrition and healthy lifestyle in different educational levels in collaboration with education organization Organize scientific meetings and conferences for relevant authorities of all departments, organizations and etc.
	Deputy of Treatment of MOHME	Review and strengthen the nutrition and diet therapy in hospitals	Development of related practical and clinical guidelines, including management of the hospital's food, in collaboration with the Nutrition Improvement Office
	Deputy of Education of MOHME	Increasing knowledge and skills of nutrition students with focus on different fields	Supporting the necessary financing to set up nutrition period with different trends Communication and cooperation of international universities for improvement of nutrition program, particularly in PhD
	Deputy of Management Development and Resources of MOHME	Analyze and assess the quantity and quality of manpower needed to establish nutrition document and food security in the country Carry out the necessary coordination to increase funding for food and nutrition security	

Discussion

The purpose of this study was to identify and categorize the sectors involved in food and nutrition security of the country with a new approach with regard to the food chain and analyzing the responsibilities and functions of the main organizations responsible in the food and nutrition security of the country. Considering that global experience has introduced food as a political issue, the supportive role of responsible governance groups in economic, political, social, technological, international, and environmental changes become increasingly apparent. The most important point is that all decision-makers and key responsible parties should be aware of the effects of their function on food and nutrition security before implementing a

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policy or decision, and prioritize this issue and, if necessary, review their decision. This division is also important, because, in practice, monitoring the intersectoral interactions between the main responsible sectors in nutrition and food security should be taken into consideration, and, in case of observing the effects of the macro factors or the need for additional support, support from other sectors should be fulfilled. Also three sectors collaborate in the field of food safety, from supervision to standardization, food and drug organization (including affiliated laboratories), the National Iranian Standards Organization and the Center for Health, Works, and Environment at the health Vice-chancellor, which overlaps the responsibilities at first glance in the supervisory level and requires elimination of conflict. According to the fourth and fifth program of the economic and social development of the country, the Supreme Council for Health and Food Security consist of ministries and organizations affecting health, as the highest decision-making authority in the field of intersectoral collaboration. The goal of the legislator was to institutionalize management, policy-making, evaluation, and coordination of this area, including food and nutrition security in the country, provide a proper food basket, and reduce diseases due to malnutrition and promote public health in the country (Islamic Parliament Research Center of The Islamic Republic of IRAN, 2018). National decision-makers have recognized the importance of correct policies in the field of food and nutrition to ensure public health and support the development of intersectoral collaboration as the only approach to achieve it (World Health Organization, 2001).

Conclusion

The findings of the present study can be used to explain the expectations and responsibilities of ministries and organizations responsible for food and nutrition security, in order to develop a consensus to institutionalize intersectoral collaboration to improve all provinces of the country to a favorable state of nutrition and food safety.

Authors' contribution

Damari B wrote the manuscript, Loloei S, Vosugh Moghaddam A, and Abdollahi Z helped in conducting the study, data collection and analysis. The manuscript was reviewed and edited by all authors.

Conflicts of interest

The authors state that there are no conflicts of interest.

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