RESEARCH ARTICLE

Enhancing nutrition specific interventions through public health policies and public-private partnerships in the Eastern Mediterranean Region: a desk review [version 1; peer review: 1 approved, 1 approved with reservations]

Arabia Mohammad Ali , Hassan Salah, Mataria Awad, Hammerich Asmus, Ayoub Al-Jawaldeh

World Health Organization, Cairo, Egypt

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Abstract

Background: Public private partnerships (PPPs) in public health have been widely promoted as an effective tool for accelerating progress toward achieving the United Nation's Sustainable Development Goals (SDGs), including SDG2 "to eliminate hunger". Partnership with the private sector was found to be very instrumental in improving the nutritional status of poor and food-insecure people and promoting healthy lifestyles. In countries of the Eastern Mediterranean Region (EMR), PPPs for nutrition actions have been mainly driven by the United Nations (UN) and international development agencies to support low and middle-income countries in achieving better health outcomes. Despite the increased prominence of engaging the private sector in public health actions in the EMR, evidence on the role of the private sector in the design/implementation of these actions is still not documented.

The objective of this study is to assess the role and contribution of the private sector in the design/implementation of nutrition-specific interventions addressing the double burden of malnutrition in countries from the EMR and identify the key factors for successful PPP implementation.

Methods: The study design was descriptive using secondary data obtained from digital internet sources, including World Health Organization (WHO) databases, grey literature, and websites of the UN and international development agencies.

Results: The desk review revealed that the private sector has played a sizable role in the implementation of food fortification initiatives and in the implementation of nutritional policies promoting healthy diets. The experience of the EMR shows the significant impact of government commitment, and the availability of national policies and

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1. **Majid Mqbel Alkhalaf**, Saudi Food and Drug Authority (SFDA), Riyadh, Saudi Arabia
2. **Majid Hajifaraji** , Shahid Beheshti University of Medical Sciences, Tehran, Iran

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systems for monitoring and enforcement on the sustainability and effectiveness of PPP-specific nutrition interventions.

Conclusion: The study emphasizes the key actions recommended for governments to enhance the application of PPPs as a tool to accelerate the EMR's progress toward achieving nutrition targets under SDG2 by 2030.

Keywords

Role of the private sector, Public-Private Partnerships, Specific Nutrition Interventions, Food Fortification, Nutrition EMR, Double Burden of Malnutrition.

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Corresponding author: Arabia Mohammad Ali (arabia.osseiran@gmail.com)

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Introduction

Health care systems across the world, even the most developed among them, are grappling with serious challenges. Population growth and aging, disruption of economic development due to conflict, increased poverty and economic hardship, and the emergence of new communicable diseases like COVID-19 are most likely to disrupt the public sector performance, leaving many health care systems vulnerable. These realities are posing an unprecedented challenge for governments to meet the United Nation's Sustainable Development Goals (SDGs) by 2030, and more specifically SDG2 "to eliminate hunger".

Based on the Global Nutrition Report 2020, "Not one country is on course to meet all ten of the 2025 global nutrition targets and just 8 of 194 countries are on track to meet four targets"¹. The gravity of the nutrition challenges demand the involvement of non-state actors including the private sector to complement government's efforts in addressing the double burden of malnutrition around the world. According to the United Nations (UN) Food and Agriculture Organization (FAO), "The fight against hunger can only be won in partnership with governments and other non-state actors, among which the private sector plays a fundamental role"².

With the adoption of the 2030 Agenda for Sustainable Development and namely SDG17 (Partnerships for the Goals), public private partnerships (PPPs) in nutrition actions have been widely promoted and encouraged by many UN development agencies who continue to play a pivotal role in assisting member states in identifying and building networks with the business sector.

In 2014, the World Health Organization (WHO) established the Global Coordination Mechanism on the Prevention and Control of Non-Communicable Diseases (GCM/NCD) to connect member states with various stakeholders, including the private sector³. At the global level, several UN development agencies have also partnered with food production industries to enhance the scope of several nutrition interventions. Examples of such initiatives include the partnership between the WHO and the International Food and Beverage Alliance (IFBA) to eliminate industrially produced trans-fats in food products⁴, and the World Food Program (WFP) partnership with several private firms to address child hunger and build nutrition education programs around the world⁵. Partnership with the private sector was also found to be very instrumental in promoting healthy lifestyle and developing initiatives to prevent childhood obesity in the United States and Europe⁶. Other examples of well-established PPPs in nutrition actions include food fortification solutions, such as the Food Fortification Initiative (FFI) originally called the Flour Fortification Initiative⁷.

The UN has taken further steps to support governments in establishing strong PPPs in nutrition interventions by establishing not-for-profit international agencies like the Scaling Up Nutrition (SUN) movement, the SUN Business Network (SBN), and the Global Alliance for Improved Nutrition (GAIN). The SUN Business Network work aimed at pushing the nutrition

agenda to the forefront by establishing alliance and partnership with key stakeholders, including the private sector⁸. These agencies continue to work closely with several governments worldwide, including Eastern Mediterranean Region (EMR) countries in developing collective actions to address malnutrition.

Despite the increased prominence of PPPs as an effective tool for enhancing governments' nutritional programs, the added value of engaging the private sector in nutrition actions is still limited. The literature indicates that sustainability of PPPs in nutrition actions is highly associated with the private sector competitive advantage/profit making⁹. Similar to many countries worldwide, the governments of the EMR opted to enhance the quality and efficiency of their nutrition actions by mobilizing the resources of the private sector at the national level. According to the available literature, the private sector involvement in the region has been limited to the implementation of food fortification initiatives (FFI), and in interventions supporting healthy diets¹⁰. Despite the engagement of the private sector in nutrition actions, the double burden of malnutrition continues to escalate in the region¹¹. To date, there is little evidence documenting the impact and effectiveness of PPPs in nutrition actions¹². This is specifically true for countries in the EMR, where the role of the private sector in the implementation of nutrition actions is still not documented.

Considering the above, the focus of this paper is to assess the role and contribution of the private sector in the design and implementation of specific nutrition interventions addressing the double burden of malnutrition in the EMR, and identifying the factors influencing the sustainability and effectiveness of PPPs in these countries.

Methods

Study design

The study design was descriptive using secondary data obtained from digital internet sources as the primary data collection method, i.e. a desk review.

Data collection

The data on the role/contribution of the private sector, and the challenges encountered in the implementation of specific nutrition interventions across EMR countries was collated through a comprehensive literature review from various sources, including [WHO Global database on the implementation of nutrition actions \(GINA\)](#), grey literature, specific reports on nutrition actions published by implementing partners ([WHO](#), [UNICEF](#), [WFP](#), [FAO](#)) and other UN and International development agencies.

The first step of the data collection process aimed at developing a comprehensive list of specific nutrition policies/actions that have been implemented across EMR countries. A team of three reviewers conducted the database search using [GINA](#) database (A–Z country list) to develop a comprehensive list of specific nutrition actions for each of the 22 EMR countries. The countries were distributed among the reviewers as per the WHO classification for EMR countries ([Table 1](#)).

The information gathered from GINA, included name of country, name/title of the nutrition initiative, background information on the initiative, and the implementing partners.

The second step of the data collection process included a grey literature and Google web search for articles and reports published between 2010 and 2020 in English. The search also included websites of UN and international development agencies to locate detailed information on the actions that were not included in GINA or google search. For the Google search, reviewers used the following search terms “specific title/name of the nutrition program/ action with the country name”.

The reviewers used the inclusion criteria (defined below) to screen the full text independently and as a team of three to determine the eligibility of the nutrition action/ program.

The initial list was then narrowed down to include only specific nutrition actions/interventions that were implemented in partnership with at least one private for-profit organization.

A short data extraction table (Microsoft Excel 2013) was used to extract the information from the internet sources to

allow for data analysis and documentation of findings. The main variables that were extracted from the literature included country name, name of the action/intervention, program objectives, implementing partners, role and responsibilities of the partners, reported challenges, and reported health outcomes/ evaluation if available.

Inclusion criteria

In order to find and select the nutrition actions relevant to the objective of this study, the following inclusion criteria was developed to inform the data collection process:

1. *Nutrition specific interventions:* For the sake of this paper, the assessment of the private sector role was limited to nutrition-specific actions that were recognized by the World Bank as the most cost effective and high return nutrition interventions (Table 2), in addition to interventions targeting the increased prevalence of obesity in the EMR.
2. *Public-private partnerships:* For the specific purpose of this study, we used Reich’s definition of PPPs: “Public-Private Partnerships involve at least one private for-profit organization with at least one not-for-profit

Table 1. Stages of nutrition transition in countries of the Eastern Mediterranean Region.

Stages of transition	Countries
<i>Countries in advanced nutrition transition:</i> High levels of overweight and obesity and moderate levels of undernutrition and micronutrient deficiencies in some population subgroups.	Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and United Arab Emirates
<i>Countries in early nutrition transition:</i> Characterized by moderate levels of overweight and obesity, moderate levels of undernutrition in specific population and age groups, and widespread micronutrient deficiencies.	Egypt, Islamic Republic of Iran, Jordan, Lebanon, Morocco, and Tunisia
<i>Countries with significant undernutrition, including countries in complex emergency situations:</i> Particularly high levels of acute and chronic child malnutrition, widespread micronutrient deficiencies and emerging overweight, obesity and diet related NCDs in certain socioeconomic sectors.	Afghanistan, Djibouti, Iraq, Libya, Pakistan, Palestine (Gaza Strip), Somalia, Sudan, Syrian Arab Republic, and Yemen

Source: Strategy on nutrition for the Eastern Mediterranean Region 2020–2030¹³.

Table 2. Evidence-based cost effective and high return nutrition interventions.

Interventions	Actions
Promoting good nutritional practices	Promoting exclusive breastfeeding and increasing awareness of complementary feeding for infants after the age of six months.
Provision of micronutrients for children and mothers	Provision of Vitamin A supplements for children and iron- folic acid supplements for pregnant women.
Therapeutic feeding of malnourished children with special foods	All actions including prevention/ treatment of moderate undernutrition, and treatment of severe acute malnutrition with ready to use therapeutic foods.
Provision of micronutrient through food fortification	Salt iodization and wheat fortification programs.
Obesity	All actions targeting the increased prevalence of obesity in EMR countries.

Source: Scaling up Nutrition: A Framework for Action, April 2011¹⁴.

organization, who provide a joint sharing of efforts and of benefits and are committed to the creation of social value (improved nutrition and health), especially for disadvantaged populations.”¹⁵.

Results

Based on the desk review, it was evident that countries of the EMR have invested in developing various national nutritional policies, nutrition strategies and action plans to accelerate their progress toward achieving SDG2. Most of these countries have worked with various stakeholders, including UN development agencies, national and international non-governmental organizations (NGOs), other sectors, and the private sector in the implementation of their national nutrition strategies. Unfortunately, the role of the private sector in the implementation of the nutrition policies/actions in the region is not adequately covered in the literature. Based on the relevant literature, the involvement of the private sector in actions addressing nutrition actions varied across interventions and countries and ranged from being high to non-existent in certain actions as described below.

Role of the private sector in promoting good nutritional practices in EMR countries

Following the WHO guidelines, all EMR countries have integrated the promotion of infant and young children feeding practices (IYCF) at the primary care level as part of the antenatal and postnatal packages of care. Initiatives for promoting exclusive breastfeeding and complementary feeding counseling for infants and young children were also provided during ante-natal and post-natal visits in most of the countries of the region. The implementation of these initiatives has required the involvement of many stakeholders including the Ministries of Health, international and UN development agencies as well as national NGOs. Other initiatives targeting IYCF in these countries included the implementation of the Baby-Friendly Hospitals) as part of the global efforts to protect and support breastfeeding.

The role of the private sector in the development and implementation of IYCF actions in advanced nutrition transition countries (ANT)¹ was only reported in Bahrain. The IYCF program in Bahrain was developed in collaboration with the International Baby Food Action Network (IBFAN), and the agencies for importing and distributing breast milk substitutes in the country¹⁶. In early nutrition transition countries (ENT)², private sector involvement was only reported in Lebanon. The Lebanese Ministry of Health worked in close collaboration with UN agencies (WHO, UNICEF), international NGOs, Order of Nurses, and the private media to promote exclusive breastfeeding¹⁷. In EMR countries with significant under-nutrition/in complex emergency (SUN/CE)³, the involvement of the private sector

in the implementation of IYCF actions was reported only in Pakistan and Iraq. In 2019, the government of Pakistan launched a Breast-Feeding Campaign in collaboration with UNICEF, and the private sector¹⁸. Through this program, 50 million people were reached by disseminating IYCF messages through theaters, seminars, social media and television spots. The program was funded through corporate social responsibility. A similar breastfeeding promotion campaign was also implemented in Iraq in collaboration with UNICEF and in partnership with the national mobile network provider Zain¹⁹.

Following WHO guidelines, ANT and ENT countries have also enacted laws/regulations to protect and promote exclusive breastfeeding by implementing the International code for marketing of breast milk substitutes (the code)⁴. However, none of these countries have succeeded in achieving full implementation of the code regulations. The most common reported challenge in the implementation of the code included the governments’ inability to monitor and enforce the compliance of the relevant stakeholders, including the private sector. Lack of adequate monitoring and enforcement mechanisms of the code was also reported in Bahrain¹⁶, and the Kingdom of Saudi Arabia (KSA)²⁰. In Kuwait, over-prescription of infant formula by the private sector physicians has also been identified as one of the main challenges in implementing the code²¹. A weak monitoring and evaluation framework, accompanied by weak advocacy and implementation mechanisms of the code was also reported in Jordan²², and Lebanon. In Lebanon, some hospitals violated the code by providing pre-lacteal feeding before breastfeeding and offering samples for mothers upon discharge²³. The implementation of the code regulations is highly determined to the engagement and compliance of the private sector (food manufacturers and distributors). However, information on the role of the private sector in the implementation of the code was lacking.

Role of the private sector in the provision of micronutrients for children and mothers

Within EMR countries, programs to provide different micronutrients supplementation (vitamin D, iron, folic acid) to different age groups are mainly led by the government with no involvement from the private sector. Engagement of the private sector in the implementation of vitamin A supplementation programs in EMR countries was only reported in Palestine through government partnership with local producers of fortified biscuits and milk²⁴. In Somalia, the National Micronutrient Deficiency Control Strategy indicated the important role of the private pharmaceutical industry in supplying, promoting and implementing quality controls on the program²⁵. However, available evidence on the involvement of the private sector in this initiative was not available in the literature.

¹ Countries in Advanced Nutrition Transition, include Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and United Arab Emirates

² Countries in Early Nutrition Transition include: Algeria, Egypt, Islamic Republic of Iran, Jordan, Lebanon, Morocco, Palestine, and Tunisia.

³ Countries with Significant Under Nutrition & Countries in Complex Emergencies include: Afghanistan, Djibouti, Iraq, Libya, Pakistan, Palestine (Gaza Strip), Somalia, Sudan, Syrian Arab Republic, and Yemen

⁴ The International Code of Marketing of Breast-milk Substitutes contributes to the provision of safe and adequate nutrition for infants, by the protection and promotion of breast-feeding, and by ensuring the proper use of breast-milk substitutes (WHO, 1981. https://www.unicef.org/nutrition/files/nutrition_code_english.pdf.)

Role of the private sector in therapeutic feeding of malnourished children

In both ANT and ENT countries, protocols for screening and management of severe acute malnutrition (SAM) and moderate acute malnutrition (MAM) have been incorporated through food distribution programs and have been integrated at the primary health care level. Yet none of these initiatives has involved the private sector. In SUN/CE countries, the screening and management of SAM and MAM are being led by Ministries of Health in collaboration with UNICEF as the lead agency and other UN development agencies, including the WHO, WFP, and local NGOs on the ground.

The involvement of the private sector in SAM treatment was reported only in Sudan and Pakistan. In 2019, the Sudan Ministry of Health in partnership with UNICEF collaborated with local ready-to-use therapeutic food (RTUF) manufacturers to strengthen the supply chain of RTUF in three Darfur states and the states of South Kordofan and Khartoum²⁶. This partnership resulted in maintaining an adequate reserve of RTUF in the supply pipeline. In Pakistan, the WFP and UNICEF are working with local manufacturers to increase the local production of RTUF²⁷.

Role of private sector in food fortification initiatives

Salt iodization (SI) and wheat flour fortification (WFF) are the two most common food fortification initiatives in the region. According to the literature, the implementation of WFF programs in most of the EMR countries is being led by the Ministries of Health working in partnership with several UN development agencies, international development agencies, donors, and the private sector (mills industry). The same applies to SI initiatives. For the past two decades, WHO and UNICEF have been working in close collaboration with the International Council for Control of Iodine Deficiency Disorders (ICCIDDs), other international agencies and the salt industry to support the governments in the region in developing their national salt iodization programs. In 2008, UNICEF fostered a new partnership with the Global Alliance for Improved Nutrition (GAIN) to further support the SI programs in selected priority countries in urgent need for SI²⁸.

The majority of the ANT countries have achieved good coverage of WFF and have reported improvement in health outcomes as a result of the food fortification initiatives. Examples of successful food fortification initiatives include Kuwait, whereby one industrial mill in the country produces all of the flour, and 100% coverage of fortification is reported²⁹. In ENT countries, WFF is mandatory in the Islamic Republic of Iran, Jordan and Morocco. Other countries have introduced voluntary measures for flour fortification such as Lebanon. In Egypt, a flour fortification program (with iron and folic acid) has been stalled since the political changes in 2011, despite having undergone a 5-year preparatory phase²⁹. Examples of successful flour fortification initiatives include the ones implemented in the Islamic Republic of Iran and in Jordan, with fortification levels of 100% and 93%, respectively²⁹. The success of the

Jordanian WFF program was attributed to the government strength in enforcing the food industry compliance with food regulations and standards³⁰. Other countries including Egypt and Lebanon are experiencing challenges in implementing and sustaining these initiatives. These challenges are the result of poor enforcement mechanisms and coordination by the governments, as well as limited resources²⁹.

In SUN/CE countries, WFF is mandatory in Djibouti, Iraq, Palestine, and Yemen. Most countries have introduced WFF voluntary legal standards, except for Libya and Somalia where flour fortification is not implemented yet²⁹. The Pakistan partnership with the private miller's industry for the implementation of the national WFF program, did not yield the expected health benefits/desired national coverage³¹.

All ANT countries have also implemented SI initiatives on a national scale, except for the KSA. SI iodization programs in the United Arab Emirates (UAE) and Kuwait are progressing quickly toward achieving full coverage and eliminating iodine deficiency disorders in their countries³².

ENT countries have also implemented mandatory SI initiatives on a national scale. Some have policies guiding the process of salt iodization including Egypt, the Islamic Republic of Iran, Lebanon, and Morocco³². According to the literature, the partnership between the government and salt producers for the implementation of the national salt iodization program is both sustainable and effective. The SI in Jordan has significantly contributed to achieving better health outcomes by reducing iodine deficiency disorders in the country³³. In Lebanon, a policy brief to inform the national SI program was published through a joint effort of affiliated centers at the American University of Beirut (AUB), international NGOs and donors. The brief noted that, despite the existence of a law for SI, the lack of financial resources and poor enforcement mechanisms are hindering effective implementation³⁴. In Morocco, the government failed to sustain the SI initiative due to increased competition from non-iodized salt producers³². Other challenges imposed due to the activities of the private sector are notable in Egypt, where many salt producers, re-packagers, and unlicensed salt producers continue to threaten the sustainability of salt iodization due to the lack of effective governmental monitoring mechanisms³⁵.

In SUN/CE countries, SI initiatives are being implemented in Afghanistan, Iraq, Libya, Pakistan, Palestine, Sudan, Syria, and Yemen. According to UNICEF, Afghanistan is on track but still has a long way to go. Countries including Sudan, Pakistan, Somalia and Yemen continue to struggle with attaining the minimal required consumption of iodized salt³⁶.

Based on the available literature, it was evident that the private sector plays a significant role in the implementation of food fortification initiatives (FFIs) in most of the EMR countries. However, it was also evident that many of the countries in the region are facing major challenges in the implementation of

their FFIs due to the gaps in their regulatory framework, lack of financial resources, and weak monitoring and enforcement mechanisms.

Role of the private sector in nutrition actions targeting obesity

The literature showed that the private sector has a sizable role in the implementation of nutrition actions promoting healthy diets in both ANT and ENT countries. However, the information on the countries' experience with PPPs in the domain of obesity prevention and control is not readily available.

At the policy level, some of the ANT and ENT countries such as Bahrain, Saudi Arabia, Kuwait, Oman, Egypt and Jordan have enacted reformulation policies/legislative measures to reduce salt and trans-fatty acids in food products³⁷. Others have taken nutrition actions to reduce sugar intake, such as Egypt, Jordan, Morocco, and Tunisia. Nutrition labeling legislation was also adopted in countries such as Bahrain, the UAE, Saudi Arabia, Tunisia and Jordan. In Bahrain and the UAE, labeling is mandatory and supported by the country's national policy³⁸.

Marketing of unhealthy food for children is also being regulated in some of the EMR countries as well. Oman has established legislation to ban the marketing of unhealthy foods and beverages to school age children. Egypt, the Islamic Republic of Iran, Morocco, and Tunisia have introduced a taxation and price policy on unhealthy foods and/or beverages³⁸. Food guidelines and standards were also adopted in the Islamic Republic of Iran, Lebanon, and Morocco. According to best practices, the implementation of these policies requires the involvement of the private sector (food manufacturers). However, data on the role of the private sector in these initiatives was not available.

At the program level, the majority of ANT and ENT countries have developed multi-sectoral platforms for the prevention and control of non-communicable diseases. These actions involved different partners, including ministries of Health, Education and Sports, alongside different UN agencies, the WHO, national NGOs and the private sector (representatives from the food industry). Qatar has established a large scale multi-sectoral network, including the private sector, media, education, and research centers, as well as the tourism sector to support the implementation of its obesity nutrition actions. The Qatar experience illustrates the role of the tourism sector (hotels and restaurants) in increasing the reach of obesity awareness and the role of the private sector in mobilizing resources³⁸. A similar multi-sectoral program was also implemented in Oman to prohibit the marketing of high-fat, energy dense, and/or micronutrient-poor foods and beverages on school premises³⁸.

The involvement of the private sector in obesity interventions in both ANT and ENT countries is well reported through a variety of programs. Engagement of the media in the implementation of awareness campaigns on healthy eating practices was reported in Bahrain, Qatar, KSA, Lebanon, the Islamic

Republic of Iran, Jordan, Morocco, and Tunisia. Similarly, the UAE has worked closely with the private sector to implement various obesity awareness initiatives, such as the UAE's national program "2021 Healthy Children Initiative" and the "Health Heroes" smart app³⁹. Bahrain and Saudi Arabia were the only countries to implement awareness campaigns at the workplace to increase awareness about obesity and its related consequences.

Partnership with the food sector (local bakeries) to reduce the amount of salt added to bakery products was reported in Bahrain, Morocco, and Tunisia. Other examples of the food industry involvement include, the "United for Healthier Kids U4HK" initiative led by Nestlé Middle East and implemented in the UAE and Kuwait to help parents establish healthier eating, drinking and lifestyle habits for children aged four to 12³⁹. In Saudi Arabia, the "Al-Haraka Baraka physical activity promotional Initiative" is a collaborative effort between a public university (King Saud University), a non-profit organization (Arab Nutrition Center), and the private sector (Mars Middle East Inc.). This initiative is designed as an educational program targeting school aged children 6-12 years of age⁴⁰.

These findings indicate that EMR countries have taken major steps towards developing policies and implementing strategies to prevent and combat obesity in partnership with the private sector. However, more evaluation evidence is needed to determine the impact of these partnership on health outcomes.

Among SUN/CE, only Pakistan has taken some action to control the increased prevalence of obesity among adolescents and adults. In 2019, the Pakistan Ministry of Health developed a policy paper on adolescent (boys and girls) nutrition in Pakistan⁴¹. This project was done in partnership with the World Bank, GAIN, and Safansi. In 2020, the Ministry of Health in Pakistan took serious steps toward eliminating industrially produced trans fatty acids with the support of SUN Business Network (SBN), and GAIN, in partnership with the International Food and Beverage Alliance⁴². Both programs involve partnership between the government of Pakistan and the private sector. However, both projects are still in the initiation phase and thus evaluation data was not available.

Conclusion and recommendations

The desk review revealed that there are serious gaps in the information available about the role and the contribution of the private sector in the implementation of nutrition actions in the EMR. Thus, more in-depth information is needed to be able to determine clear quantitative indicators on the impact and outcome of PPPs in nutrition interventions for the region.

The findings also showed that there have been mixed experiences in engaging the private sector across nutrition interventions as well as across countries of the EMR. The private sector has played a sizable role in the implementation of food fortification initiatives promoting IYCF, and diet related NCDs actions across many countries in the EMR and was found to

be extremely limited in the implementation of micronutrient supplementation programs and the treatment of MAM and SAM.

The experience of EMR countries with PPPs in nutrition specific interventions also illustrates the potential benefits of the private sector engagement in the implementation of specific nutrition interventions. This is true in food fortification initiatives that have succeeded in improving nutrition health indicators. However, the study also revealed that many EMR countries are still struggling in the implementation of PPPs addressing FFI, the code of marketing of breast milk substitutes and marketing of healthy food. The failure to attain the PPP objectives and priorities in these countries were attributed to the absence of a supporting policy framework, processes to manage conflicts of interest, effective monitoring, and enforcement systems, as well as lack of transparency and accountability at the government level. Considering the above, PPPs have a great potential in supporting EMR countries in reaching SDG2 if they follow adequate principles and rules in the engagement of the private sector.

The recommendations below emphasize the key actions that governments and international implementing partners in EMR countries can take to ensure the success of PPP implementation in specific nutrition interventions:

1. Establishing national regulatory and statutory frameworks in place to guarantee the commitment, accountability, and transparency of all key partners.
2. Instituting strong monitoring and enforcement systems to monitor the performance of the private sector.
3. Developing clear governance structure by enacting legally binding agreements with clear description of roles, and responsibilities as well as partnership objectives and desired outcomes.
4. Developing a national policy/ strategy to attract and facilitate the private sector engagement in nutrition actions.
5. Setting up a systematic approach to evaluating the impact and outcomes of PPPs in nutrition actions in the EMR.

The adoption of these recommendations/actions will enhance the application of PPPs as a tool to accelerate the EMR countries progress toward achieving the nutrition targets under SDG2 by 2030.

Data availability

Underlying data

Dryad: Public –Private Partnerships in Nutrition Specific Interventions in EMR Countries, <https://doi.org/10.5061/dryad.dv41ns1ww⁴³>.

Data are available under the terms of the [Creative Commons Zero “No rights reserved” data waiver](#) (CC0 1.0 Public domain dedication).

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Majid Hajifaraji

Department of Food and Nutrition Policy and Planning Research, National Nutrition and Food Technology Research Institute, Shahid Beheshti University of Medical Sciences, Tehran, Iran

This paper is well written and is based on rigorous academic standards. The supporting evidence in this paper is strongly reliable and properly validated and the introduction provides the necessary background information.

However, I have a few and minor comments that need to be addressed:

- The keywords should be amended based on Mesh: The private sector, Public-Private Partnerships, Nutritional support, Intervention, Food, Fortification, Malnutrition, Eastern Mediterranean.
- Needs to add a table of the collected studies and the extracted data.
- No need for the footnotes in page 5, as they have already presented in table 1.
- So, by adding the acronyms into the table you could use them in the following paragraphs.
- In paragraph 3 of page 7: Iran has also enacted reformulation policies to reduce salt in traditional bread by involving the private sectors, and trans-fatty acids in some food products and, sugar (especially in beverages).

Is the work clearly and accurately presented and does it cite the current literature?

Yes

Is the study design appropriate and is the work technically sound?

Yes

Are sufficient details of methods and analysis provided to allow replication by others?

Yes

If applicable, is the statistical analysis and its interpretation appropriate?

Not applicable

Are all the source data underlying the results available to ensure full reproducibility?

Yes

Are the conclusions drawn adequately supported by the results?

Yes

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Nutrition and food policy, dietary and nutrition assessment methods, clinical nutrition, research methodology

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Author Response 19 Jun 2021

Arabia Ali, World Health Organization, Cairo, Egypt

Majid Hajifaraji

Thank you for your constructive comments, the dataset (table of collected studies) are already available here: <https://datadryad.org/stash/dataset/doi:10.5061/dryad.dv41ns1ww>

Unfortunately, we couldn't have access to the evidence that supports your point on the following:

- In paragraph 3 of page 7: Iran has also enacted reformulation policies to reduce salt in traditional bread by involving the private sectors, and trans-fatty acids in some food products and, sugar (especially in beverages).

Thank you.

Competing Interests: No competing interests were disclosed.

Author Response 19 Jun 2021

Arabia Ali, World Health Organization, Cairo, Egypt

Dear Dr. Majid

I just want to inform you that a new version was submitted taking in response to your comments.

Thank you and best regards.

Competing Interests: No competing interests were disclosed.

Reviewer Report 28 January 2021

<https://doi.org/10.5256/f1000research.30634.r77162>

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Majid Mqbel Alkhalaf

The National Nutrition Committee, Saudi Food and Drug Authority (SFDA), Riyadh, Saudi Arabia

This study is well written. I have few and minor comments need to be addressed below:

For methodology part:

- Need to clarify whether the authors performed double revision for the extracted data.
- Need to attach a table of the collected studies and the extracted data.
- Authors mentioned that the collected studies were conducted between 2010-2020. However, they did not provide any justification for this criterion.

For result part:

- The flow of presenting the results was consistent and clear enough. However, there were many missing references need to be cited. For example:
 - In the "Role of the private sector in promoting good nutritional practices in EMR countries" part, for the second paragraph, there was no cited reference after the following sentence: "the involvement of the private sector in the implementation of IYCF actions was reported only in Pakistan and Iraq"

For the references part:

- The volume and issue numbers were missing in the following references: 9, 29, 34, 40, and 41.
- In reference 18, "United Nations Children's Fund (UNICEF)" should be bolded.

Is the work clearly and accurately presented and does it cite the current literature?

Yes

Is the study design appropriate and is the work technically sound?

Yes

Are sufficient details of methods and analysis provided to allow replication by others?

Yes

If applicable, is the statistical analysis and its interpretation appropriate?

Not applicable

Are all the source data underlying the results available to ensure full reproducibility?

Yes

Are the conclusions drawn adequately supported by the results?

Yes

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Nutrition, Dietary and nutrition assessment methods, public and clinical nutrition.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

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