



Reporting on the Status of Nutrition Programs of Higher Education in the Syrian Arab Republic: A Current Snapshot

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Abstract

Background: The Syrian Arab Republic (SAR) is experiencing high rates of malnutrition. While many adults experience overweight and obesity, as a direct result of the continuing conflict, SAR is also noted as one of the most food-insecure regions in the Arab world. To combat the health impacts and outcomes related to diet and dietary behaviors, trained nutrition professionals are needed. We aimed to examine current nutrition-affiliated programs offered in post-secondary institutions in the SAR.

Methods: The search was conducted between Jan and Feb 2021. An electronic review of universities and colleges' websites, department webpages, and academic programs' homepages and resources of all the private and public universities in SAR was conducted to find programs related to nutrition, nutrition sciences, and dietetics.

Results: Only 13%, or 4 out of 30 SAR colleges and universities had bachelor's programs in nutrition or nutrition science, and none had nutrition programs at the graduate or terminal degree levels.

Conclusion: A pathway for integration of graduates from nutrition sciences into the healthcare and public health workforce should be defined and an understanding of the value of those with a degree in nutrition should be cultivated in clinical and community care settings. Partnering with existing or creating independent organizations charged with defining the scope of practice and ensuring educational quality and competence of graduating students, as well as readiness to practice as part of a healthcare team or in a public health nutrition role will be integral to moving the nutrition profession forward in the SAR.

Keywords: Nutrition; Syria; Higher education; Public health



Introduction

Annually, the global burden of non-communicable diseases accounts for 71% of human deaths each year, which is approximately 41 million people each year (1). Among the leading contributor to the global burden of Non-Communicable Diseases (NCD) is Malnutrition defined as undernutrition and/or overnutrition associated with nutrient deficiencies, excesses or imbalances in energy intake, protein and/or other essential nutrients (2). By 2020, over 60% of the non-communicable disease burden including cardiovascular disease, type II diabetes, and hypertension was related to overweight and obesity (3). Of great concern is the exponentially increasing prevalence of overweight and obesity among individuals in the Middle East and North Africa (MENA) region (4). The rates of overweight and obesity are strongly correlated to changes in dietary habits, physical activity patterns, and westernization in Arab countries during the past three decades (3). Changes to dietary habits in Arab countries show an increase of daily caloric intake, replacement of traditional diets with fast and processed foods, and low intake of milk, fruits, and vegetables (3, 5). Data from regional WHO STEPS surveys (STEPwise approach to NCD surveillance) revealed that 79%–96% of adults in Egypt, Jordan, Iraq, Saudi Arabia, Kuwait, Qatar, and the Syrian Arab Republic (SAR) reported overconsumption of diets rich in fat and salt; further the surveys found overall inadequate intake of fruits and vegetables (5).

In the SAR, the prevalence of individuals with overweight and obesity is high overall, particularly in urban and rural areas, with the highest regional prevalence reported in the cities of Aleppo (31.5%), and Al-Raqqa (47.8%), and the number of women with overweight and obesity is particularly high in the SAR (6). The higher prevalence of women with overweight and obesity in the SAR might be correlated with social norms and gender roles of traditional Arab societies, whereby women adopt the role of child-bearers and childrearing, as well as the added burden of

household duties rendering little opportunity for recreational activities or sports (7). Taken together, this may communicate that women experience a larger risk of health-related inequalities simply due to gender.

Cardiovascular Disease (CVD) accounts for almost 45% of overall mortality reported between 2002 and 2007 in the Syrian population (6). In developed countries, high socioeconomic status is associated with reduced probability of CVD risk factors, however, an inverse relation is found among the Syrian population (6). Fruits and vegetables are widely available and affordable in the SAR, however their beneficial effects on the quality of health status, particularly on cardiovascular health are not well-reported in the literature (6). A study conducted in Damascus focused on analyzing dietary habits and food consumption among adolescents. Cultural norms, socioeconomic factors, along with lifestyle and nutrition education influenced dietary behavior (7). Among participants in the study the lower consumption of fruit and vegetables was associated with limited knowledge about the health benefits of fruits and vegetables, and of healthy eating behaviors; interestingly the study found that 33.1% of nutritional information was derived from family members, 6.4% from schools, and 5.1% from social media (7).

Since 2011, civil war in Syria has devastated and displaced a large portion of the country's population creating a detrimental impact on the lives of over 11 million Syrians, and in turn also impacting millions of citizens in host countries (8, 9). The massive displacement of Syrians has not only resulted in the political upheaval, but also in crises in the national economy, destruction of security, damage to infrastructure, and collapse of services alongside other social consequences, including an impact on education (8, 9). As a direct result of the continuing conflict, SAR is among the most food-insecure country in the Arab world (10). This constitutes the presence of a double burden of malnutrition characterized by a

coexistence of both overnutrition as stated earlier, and undernutrition. According to the recent report released by Global Hunger Index (2020), the conflict has impacted the regional agricultural trade of the country, negatively affected food security and food supply (11).

The World Food Program (WFP) suggests that 2.5 million Syrians experience hunger from the inaccessibility of food due to financial crisis in the country, unmet food needs, nonfood assistance, and poor health in refugee shelters (12). According to the WFP, food prices in SAR have continued to increase, with nationwide average prices of the standard reference food basket reaching more than 88,000 Syrian pounds [around 70 U.S. Dollars] in Oct 2020 (13). Syrians experiencing this humanitarian crisis are at higher risk of malnutrition, poorer overall health, and at increased risk of associated comorbidities due to the lack of access to healthy food and health services (14). A 2020 Situation Report by the Food and Agriculture Organization estimated that a total of 9.3 million Syrians will undergo severe **acute food insecurity**, and another 1.9 million people are at risk of being food insecure (15). This results from the war and conflict that impacted the country's economy, as GDP declined by 63% from 2011 to 2016, as reported by the World Bank in 2018 (16). Consequently, a sharp decrease in income was experienced by families leading to a widespread inability to afford the costs of housing, utilities, fuel, water, and food (17). In addition, food production via agricultural activity was also affected, falling nearly 40% in just four years (16). Together, reduced incomes for many families and the drop in agricultural production were determinantal factors leading to extensive food insecurity throughout SAR (17).

Tackling the complex nature and multi-faceted aspect of malnutrition burdening the region involves several actions to reorient services related to nutrition behavior. One action is the development and implementation of culturally sensitive nutrition programming and policies that reach families and the community (18). Families play an important role in education about nutrition (18).

Nutrition programs seek to promote healthy dietary behaviors and improve eating habits by delivering health and nutrition education; this is achieved through the implementation of multidisciplinary approaches that follow prior successful evidence-based nutrition programs (19). Typically, these evidence-based nutrition programs include assessments, an education component, and the dissemination of information on healthier eating habits. Together these efforts can assist in the reduction of the incidence of undernutrition and reduce the possibility of overnutrition and related diseases such as obesity and its comorbidities (20-23). Dietitians and nutritionists play an essential role in implementing these multidisciplinary approaches to nutrition education and behavior change. To produce the best health outcomes there is a need to have diet and nutrition experts developing, implementing, and evaluating these interventions. Yet, to achieve this step, there is a dire need in evaluating the SAR for education and credentialing of dietitians and nutritionists. There is a lack of evidence about the number and capacity of college-based nutrition education programs, the career outcomes of graduates from these programs, and the role of these programs in SAR.

Thus, the aim of this study was to examine and review the number and role of nutrition degree programs offered in colleges and universities in SAR. The utility of the current efforts will highlight strengths in programming, as well as assist in communicating areas that present opportunity for growth and improvement.

Methods

The Syrian Ministry of Higher Education website publishes an inclusive list of colleges, universities, and other higher education institutions (24). To identify all the nutrition degree programs offered, study researchers performed an electronic review of universities and colleges' websites, department webpages, and academic programs' homepages and resources of all the private and public universities in SAR. Languages used for the electronic

review included Arabic, French, and English. The search was conducted between Jan and Feb 2021. Nutrition degree programs that are offered in various universities and colleges in SAR and which require at least four years of completion were included. Community colleges and vocational schools were excluded from the review. Search terms and phrases of university departments and programs included: Nutrition, Clinical Nutrition, Medical Nutrition Therapy, Nutrition and Food Sciences, Program, Department, bachelor, Masters, PhD program, Doctoral studies.

The obtained information was organized according to whether the institution is a college or Uni-

versity, private or public. The programs and degrees awarded were specified and tabulated.

Results

Overall, 30 universities and colleges in SAR were identified for review. Our initial review found that 7 institutions were public, and 23 were private institutions of higher learning. The initial 30 institutions' websites were screened for programming in dietetics or nutrition. Out of the 30 Syrian universities and colleges initially reviewed, it was found that only 4 offer Nutritional Sciences Programs for undergraduate-level students, 2 of which are public universities, and 2 which are private universities (Table 1; Fig. 1).

Table 1: List of nutrition-affiliated programs offered in selected universities in Syria

<i>College/university</i>	<i>Private/Public</i>	<i>Program name</i>	<i>Degree(s) awarded</i>
Damascus University	Public	Nutritional Sciences	Bachelors
Albaath University	Public	Nutritional Sciences	Bachelors
Kalamoon University	Private	Nutritional Sciences	Bachelors
Al-Hawash Private University	Private	Nutritional Sciences	Bachelors

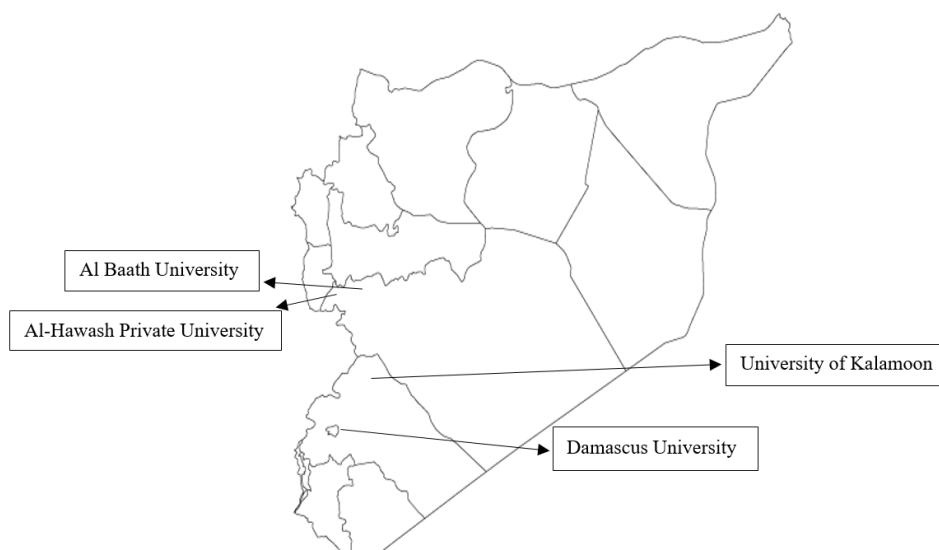


Fig. 1: Geographical location of universities offering nutrition degree programs in Syria

Public Universities awarding a nutrition science degree

The public universities included Damascus University, and Al Baath University. The private universities were Kalamoon University, and Al-Hawash Private University. Damascus University is the oldest institution of higher education in SAR, established in 1923, it is known for scientific and educational foundation in major areas of medicine, agriculture, economics, science, and engineering. It offers a Bachelor's Degree in Nutritional Sciences within the School of Life Sciences (Faculty of Science). Al Baath University is considered to be the fourth-largest public university in SAR, and its aim is to educate highly qualified students in all majors, especially in the scientific fields that meet the needs of the labor market in various specializations. In academic year 2007-2008, the Nutritional Science bachelor's degree program was introduced under the School of Health Sciences (Faculty of Health Sciences).

Private Universities awarding a nutrition science degree

Kalamoon University was established in 2003 and in 2004-2005, the Nutrition Department was established under the School of Health Sciences. The department awards a bachelor's degree in Nutrition Sciences. Al-Hawash University was founded in 2007 and offers a Nutrition and Healthcare bachelor's degree program awarded by their School of Cosmetology. Nutrition programs for graduate degrees such as Masters and/or terminal degrees such as Ph.D. or EdD were not found at any of the 30 identified universities and colleges.

Discussion

Undernutrition, including protein energy undernutrition in children, and micronutrient deficiencies across the population, as well as overnutrition leading to overweight and obesity, and comorbidities such as cardiovascular disease, type II diabetes, and hypertension are of public health

concern to much of the population of SAR. Therefore, a critical examination of the content knowledge and skills taught in these 4-year nutrition sciences degree programs is needed to determine whether those pursuing the degree are being appropriately educated to practice as a nutrition professional upon graduation; there is a clear and burgeoning need of such professionals to be trained, acknowledged, and incorporated as part of the health care and public health systems. Further investigation into the career outcomes of those graduating with degrees in nutritional sciences should be assessed, and this data should be used to determine how to integrate those with a specialty in nutrition science into the workforce of SAR.

In developed countries, the traditional pathway to become a dietitian is a combination of schooling and experiential practice under the guidance of those already credentialed in the field, with a terminal credentialing exam confirming competence in the field (25-27).

If SAR wants to incorporate this important healthcare team member into the workforce, it is imperative that dietitians and nutritionists are not only educated at institutions of higher education, but that their role as healthcare professionals is well defined. Additionally, a survey of the curricula should be conducted to determine if students are being educated equally and holistically about nutrition and dietetics so that upon graduation, they are qualified to provide nutrition education; it should also be determined whether they are adequately trained to dispense medical nutrition therapy as part of a care team. If it is found that coursework in medical nutrition therapy is not part of the core curriculum, it would be of great public service to include appropriate coursework to ensure those attaining nutrition science degrees with have practice competency in these areas. To address the health outcomes associated with under- and overnutrition, graduates of these nutrition science bachelor's degree programs need to demonstrate competency in caring for those with such conditions.

A pathway for integration of these graduates into the healthcare workforce should be defined and an understanding of the value of those with a degree in nutrition should be cultivated in clinical and community care settings. Partnering with existing or creating independent organizations charged with defining the scope of practice and ensuring educational quality and competence of graduating students, as well as readiness to practice as part of a healthcare team or in a Public Health nutrition role will be integral to moving the profession forward in the SAR.

During this review of colleges and universities in SAR, some weblinks and sites were labeled undeterminable since little information was given on the nature of degrees offered. Further, information on availability of distance-based or virtual education was also a challenge to decipher in these institutions. Lastly, due to website inaccessibility or link errors, some institutions were not included for further review.

Conclusion

This paper suggests potential next steps to incorporate those graduating with a degree in nutrition sciences into the healthcare and public health systems. First, educational standards and competencies should be defined and adhered to, as well as the scope of practice for those with degrees in nutrition. Second, there should be a clear career pathway for those with this degree to be integrated into healthcare and public health settings. Finally, there may be opportunity in partnering with or charging an independent or governmental organization to set educational standards for the field, along with a mechanism to credential graduates and/or measure competency prior to them beginning their careers.

Journalism Ethics considerations

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

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Conflict of interest

The authors declare that there is no conflict of interests.

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