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## Review Article

# Review of Health Literacy and Nutrition-Related Research in the Middle East

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## Abstract

**Aim:** In the Middle East where nutrition-related diseases continue to be on the rise, health literacy related research may provide meaningful insight to patient-provider communication, nutrition and general health behavior, to improve health outcomes. Yet, little is known about health literacy in the region. We provide insight into the current research on health literacy and nutrition-related outcomes in the region. **Methods:** English-language articles were identified using relevant keywords to search PubMed, Medline, Web of Science, and ProQuest Middle East & African. Inclusion criteria were quantitative and qualitative studies of any design focused on health literacy and nutrition-related health outcomes in the Middle East. We identified 22 unduplicated articles that met inclusion criteria. **Results:** To date, only three studies employ a validated health literacy measure to examine the relationship between health literacy and nutrition-related disease outcomes (e.g., diabetes, overweight, and obesity). However, the research findings from the three studies cannot be generalized to larger populations within each country. Participants were patients who regularly visited health care facilities. The limited samples may bias conclusions regarding health literacy and the influence on nutrition-related disease outcomes. **Conclusions:** Research is needed to understand health literacy and health literacy needs in Middle East countries, which are known for their racial and ethnic, and socio-economic diversity. Researchers can take advantage of the multitude of health literacy tools which have been validated and are readily available for use in diverse populations. Established health literacy measures provide greater benefit than developing brand new assessments when important information is urgently needed to address nutrition-related health outcomes.

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**Keywords:** Health literacy, Nutrition-related health outcomes, Middle East, commentary

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## 1. Introduction

In two decades, the Middle East has seen a drastic change in nutrition related health issues due to demographic and economic growth [2]. Most countries in this region can attribute an overflow of high-energy dietary products and affluence to such issues as diabetes, overweight, obesity, and cardiovascular disease; while a few countries experience nutrition insecurity [19]. Although low rates of malnutrition occur in Morocco and the United Arab Emirates; high levels of malnutrition are a major contributor to stunted childhood development in other countries such as Yemen [25].

Health literacy is a key predictor of health outcomes. Health literacy is the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions [15]. Health literacy is a different concept than literacy, which is the ability to use printed and written information to function in society and to achieve one's goals [9]. Variations of the definition of health literacy exist; but researchers agree that health literacy is important and influences health promotion, health care utilization, and health outcomes [24].

A growing body of health literacy research emerged from North America, Europe, Asia, and Australia [8, 24]. A number of countries recognize health literacy as a priority [1]. Outside of the United States (U.S.) an increasing international body of health literacy research developed over the past decade [18]. However, little research exists to understand the health literacy needs of people in the Middle East. Nutrition-related illness and the dependence on health care intervention are cause for health literacy interventions. However, there is a wide gap in studies examining health literacy and nutrition-related health outcomes for the Middle East [23]. Our aim is to shed some light on health literacy and nutrition-related health outcome research in the Middle East. Specifically, we examine the types and location (i.e., country) of studies examining health literacy in the context of nutrition-related health outcomes.

## 2. Attributes of Health Literacy

Health literacy has two main attributes: functional and complex skills. The first, functional health literacy skills, includes the ability to obtain health information, demonstrate basic reading skills, and understand health information. The second component, complex skills, is needed to fully utilize information obtained, and interact with health care providers and within health care systems. This implies a shared responsibility between individuals and health care providers to achieve levels of adequate health literacy and ultimately achieve successful outcomes for a health care need [4, 9]. Thus,

health literacy is not any one person's problem, it is a collective effort to achieve health outcomes and a critical component of overall health care. Health literacy skills need to be included in nutrition-related interventions to change health outcomes, but in the Middle East there is little evidence of this.

### 3. Health Literacy Gap

The National Academy of Medicine (formerly the Institute of Medicine) reported that up to 50% of adults lack the literacy skills needed to function adequately in a health care environment [27]. Some research suggests an association between health literacy and increased hospitalization, but no universal consensus has yet been established [7, 14]. Persons with low levels of health literacy may often feel embarrassed due to inadequate language skills, and may need motivation to access health care resources and gain confidence to navigate the increasingly complex health care systems [16].

Language barriers and lack of culturally competent services within the modern and often complex health care systems may create obstacles for achieving adequate health literacy [22]. Persons with low levels of health literacy may often feel embarrassed due to inadequate language skills and may need support to access health care resources and gain confidence to navigate the systems [16]. Different countries may define health literacy in other terms such as health awareness, health communication, health promotion, health beliefs, and communication for healthy living, wherefore the term health literacy may seem unfamiliar [4]. Some research shows that health care providers may not be equipped to understand and deal with cultural differences, which may affect patient-provider communication in understanding seriousness of disease, management of disease, health status and treatment options [23]. Studies show evidence of a significant relationship between health literacy, health outcomes, health care utilization and health care spending [5, 21].

### 4. Methods

Two researchers independently conducted a systematic search and review in four databases, namely: ProQuest Middle East & Africa database, Medline, PubMed, Web of Science, and Google Scholar during the Spring and Summer of 2017. Results were then compared and combined to obtain information to interpret research on health outcomes associated with nutrition behavior and related health literacy research activities, in the Middle East. The research teams first searched for relevant studies readily

identifiable for health literacy by country, and then applied supplementary search strategies to relevant electronic databases.

#### 4.1. Inclusion Criteria

We considered studies of any design which examined relationships between health literacy (assessed by validated existing and or new instruments) or health-related knowledge or behaviors and nutrition-related health outcomes in Middle East population whose first language was the dominant language of their resident country. Studies were included if: 1) their description and or use of a definition for health literacy or a newly established definition relevant to the local country/region was evident in their investigation of nutrition-related health outcomes, 2) a health literacy focus was evident, and 3) the study offered relevant content and a framework for developing hypotheses related to health literacy in the context of nutrition-related health outcomes. Eligible studies were then tallied and separated by country, study design, and health literacy assessment instrument.

#### 4.2. Search Strategy

The search for readily identifiable health literacy research in the Middle East was conducted using the key terms "health" AND "literacy" AND "name of each country listed in Table 1. Although the search term, health literacy, was common to the search strategy, adjustments were made to take advantage of the different indexing terms available within individual databases. Additional searches included the terms "health" AND "awareness," "communication," "promotion," "beliefs", and "communication for healthy living" to take into consideration the possible interchange of terminology among researchers in the Middle East.

### 5. Results

The results describe the region of the Middle East, countries included and the main language(s) spoken (Table 1). A review of data by country on health literacy research in the context of nutrition-related health outcomes in the region considered as the Middle East (Table 2). Differences exist in the list of member-countries which are considered a part of the Middle East. Results showed that those countries listed in Table 1 were appropriately labeled as member countries. Twenty countries were identified as member countries of the Middle East. The four-member countries of Algeria, Libya,

Country	Primary Language(s)
Algeria	Arabic
Bahrain	Arabic
Egypt	Arabic/Egyptian
Iran	Persian
Iraq	Arabic/Kurdish
Israel	Arabic/Hebrew
Jordan	Arabic
Kuwait	Arabic
Lebanon	Arabic
Libya	Arabic
Morocco	Arabic
Oman	Arabic
Qatar	Arabic
Saudi Arabia	Arabic
Syria	Arabic
The Palestinian Territories	Arabic
Tunisia	Arabic
Turkey	Turkish
United Arab Emirates	Arabic
Yemen	Arabic

TABLE 1: Middle Eastern Countries and Primary Language.

Morocco and Tunisia are located in Northeast Africa and are considered part of the Middle East due to cultural ties and Arabic as the national language. Another country on the African continent, Egypt, also Arabic-speaking, has historically played a political role in the Middle East and is considered a member of the region.

Among member countries, two are non-Arabic-speaking, namely Iran, where the national language is Persian and Turkey, where the national language is Turkish. While three countries are recognized for as bilingual national language users, namely: Egypt (Arabic and Egyptian), Iraq (Arabic and Kurdish), and Israel (Arabic and Hebrew). Health literacy research has only been conducted in 10 Middle Eastern countries. However, we describe only studies related to health literacy and nutrition-related health outcomes. Among the countries that have conducted health literacy research, only three of the

Country	Author(s) & Year	Purpose	Study Design	Health Literacy Assessment	Sample	Results
Iran	[10]	To identify the effect of various factors on health literacy in patients with diabetes.	Cross-Sectional	TOFHLA - Persian	N = 407	Health literacy not associated with HbA1c.
					38.3% males	
					61.7% females	
Iran	[20]	To document the relationships between functional, communicative, and critical health literacy, self-efficacy, outcome expectations, and diabetes self-care of patients with type 2 diabetes mellitus (T2DM) in Iran.	Cross-Sectional	The multi-dimensional scale of Functional Communicative and Critical Health Literacy (FCCHL)	N = 187	Positive and significant association between communicative and critical health literacy, self-efficacy, and diabetes self-care management. Functional health literacy not significant with self-care management.
					32.1% males	
					67.9% females	
Saudi Arabia	Al-Ruthia, Y. S., Balkhi, B., AlGhadeer, S., Mansy, W., AlSanawi, H., AlGasem, R., & Sales, I. (2017).	Relationship between health literacy and body mass index among Arab women with polycystic ovary syndrome.	Cross-Sectional	Single Item Literacy Screener (SILS)	N=127	Higher BMI significant lower likelihood of good health literacy.
					100% females	

TABLE 2: Research on Health Literacy and Nutrition-Related Health Outcomes in the Middle East.

studies focused on nutrition-related health outcomes (Table 2), two in Iran and 1 in Saudi Arabia.

The studies focused on 1) the association between health literacy and body mass index (BMI) among polycystic ovarian syndrome patients, 2) the effect of varying levels of health literacy on diabetes-related outcomes, and 3) the relationship between

health literacy and diabetes self-management. One of the studies was gender specific, while the other two studies had less than 40% male participation. Two studies used a health literacy measure or tool from the health literacy toolshed [3], which is a database for research on validated health literacy measures published in peer-reviewed journals.

The Arabic version of the single item literacy screener (SILS) [11] identified patients in Saudi-Arabia with low health literacy. This tool was first validated and published in 2006, in the United States, among 97% White and 3% other racial and ethnic groups of diabetes patients, in a region-wide sample, representative of the state population. The SILS is designed to identify persons with limited reading ability and in need of assistance navigating written health-related information. The Saudi-Arabian study sample consisted of 127 women with an average age of 27.40 years, and indicated that 16.54% of participants had limited health literacy. The study suggests patients with limited health literacy are more likely to have higher BMI. The study concluded that future studies are necessary to examine health-literacy enhancing interventions that can influence disease outcome.

The Iranian version of the multidimensional of Functional Communicative and Critical Health Literacy (FCCHL) [6, 20] scale was used to describe the relationship between health literacy, self-efficacy, outcome expectations, and diabetes self-care of patients with type 2 diabetes mellitus (T2DM) in Iran. This tool was first validated and published in 2008, in Japan, among diabetes patients, visiting a single hospital, and familiar with their health care provider. The tool is intended to measure three aspects of health literacy, functional, communicative and critical. The Iranian study sample consisted of 187 patients, 80.5% married, 67.9% female, and 57.2% had a primary education. Patients who received diabetes education and were married had better diabetes self-care behavior. Communicative and critical health literacy levels were found to be significantly higher in married participants. Low health literacy was related to increased age and low educational levels. The authors conclude that communicative and critical health literacy are an attribute of self-efficacy and self-care activities. The authors further suggests the use of health literacy for identifying barriers to self-efficacy in management of diabetes, which may be related to nutrition-behavior [13].

The Iranian version of the Test of Functional Health Literacy in Adults (TOFHLA) identified the effects of various factors on health literacy in diabetes patients in a single university based diabetes clinic [10, 17]. The tool was first validated and published in 1995 in the United States, among English- and Spanish-speaking patients in two outpatient settings in public hospitals. The Iranian study sample consisted of 470 patients, 61.7% female, and 85.9% married with significant differences lower



educational levels among females as compared to males. Results suggested a positive relationship between level of education, employment and health literacy. The results showed 70% of participants had inadequate health literacy levels and a correlation between reading comprehension, and numeracy skills. This study results showed an inverse relationship between level of health literacy and age: the older the patient, the lower the level of health literacy. There was no significant relationship between health literacy and levels of HbA<sub>1c</sub>. The study suggests the design of effective interventions to improve diabetes-related outcomes.

## 6. Discussion

Our aim is to describe research activities examining health literacy and nutrition-related disease outcomes. Health literacy, although popular in Western countries, Asia, and Australia has yet to find a solid base in the Middle East. Few studies exist and although multiple tools are available, few researchers take advantage of the existing evidence to understand health literacy and health literacy needs in the Middle East. Only three studies were identified relating health literacy to nutrition-related disease outcome measures. Dramatic increases in chronic disease rates, attributed to nutrition behavior, warrant more intense investigation into the role of health literacy in disease outcomes. Health literacy is a well-established and critical component of disease prevention and imperative for successful health promotion.

The three studies identified, were very specific in their focus, in that they targeted persons familiar with chronic disease only. The settings in each of the studies might have decreased the usability of the results due to the sample size and location, and limited knowledge of general health literacy levels in the population.

Health literacy in chronic disease patients tends to be higher than in other communities, due to the fact that these persons regularly engage with health care providers and are forced to deal with more health information to manage disease [26].

The current studies are not generalizable due to their specificity in sample and location, and use of study tools. The health literacy toolshed is a starting point for those communities where health literacy has not yet been measured to assess community needs. However, this toolshed may also be a good starting point for research in specific populations, when no other research for that population exists to validate the tools locally and describe health literacy needs. Health literacy is a process, wherefore it is not only useful to understand the picture in sub-populations with very specific characteristics, but for those who may or may not ever be included in such populations. An example is the population of young adolescents and young adults, who are becoming

more vulnerable to poor nutrition-related health outcomes. Increased access to the internet, with massive nutrition information, and changing cultural habits may influence health outcomes in younger populations. Access to care, increased government support to fund health care services and availability of health care services may enable persons to avoid self-management and seek health care provider help instead. Many Middle East countries are known to have a high number of expatriate health care providers compared to the number of local workforce. Cultural and language issues in health care and health literacy needs for the health care system, must be considered.

Environmental factors, such as year-round dry heat, time spent indoors provides a great opportunity for consumption of a multitude of fast food choices and pre-cooked foods, and a lack of physical activity. Inherent in a majority of the culture in the region, is the large consumption of tobacco product, which is considered one of the top non-dietary risk factors affecting health outcomes in the Middle East [12]. Undernutrition is a risk for vulnerable populations in the region, while the shift from traditional to a more diverse diet rich in carbohydrates, proteins, saturated and trans fats, sugar and salt also increases poor health outcomes for the region [19].

## 7. Conclusion

Several factors contribute to the increasing rates of nutrition-related chronic disease and strategies to address the gap in knowledge about health literacy as a key indicator of health outcomes. To begin addressing the burden of chronic disease on the region, we must first understand the characteristics of communities and sub-communities affected, and their specific needs in order to effectively design health literacy interventions for countries in the region. More research is needed to begin interpreting health literacy needs regionally and by country.

As a starting point, countries in the region should actively build awareness for individuals, health care providers, and other stakeholders that will precede health promotions activities (Adams et al., 2009). A conceptual model for health literacy in the context of nutrition-related health promotions should be aimed at improving knowledge and understanding of health determinants, and improving nutrition behavior. The relatively young population representing diverse countries in the Middle East can be targeted in school systems, to create awareness and the need for physical activity coupled with nutrition education. By including the educational system, a partnership to develop health literacy initiatives from a non-clinical perspective can be developed.

One limitation may be the lack of community health and practices linked only to clinical settings, which may limit nutrition-related health promotions activities to

merely those conducted in collaboration with or in clinical settings. A community-based approach linking individuals, health care providers, policymakers, and stakeholders, will be the challenge to prescribe health literacy as a key indicator of nutrition-related and other disease outcomes.

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