

# Physicians' Knowledge and practice of Nutrition Education in Health Care Centers of Saudi Arabia: Systematic Review

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## Abstract

Primary care medical doctor (PHC) have a chance to sustenance the healthy eating behaviors of patients by giving nourishment education. This study aimed to explore the updated evidence concerning physicians' knowledge and practice of nutrition education in healthcare centers in Saudi Arabia. A systematic review was conducted. We searched PubMed, Web of Science, Science Direct, EBSCO, and the Cochrane library. Using Rayyan QCRI, study articles were first screened by title and abstract before a full-text analysis was done. Results: This review included a total of 8 research with participants of both sexes and varying ages. The included studies used a variety of designs, mostly cross-sectional, but they are all legitimate. The main evidence demonstrated by most of the reviewed studies is that primary care physicians have just a reasonable nutrition knowledge and are aware of the only basic nutritional knowledge for providing nutrition care to their patients. Medical students' knowledge, attitudes, and confidence in offering nutritional counselling to patients all showed how inadequate the nutritional programme was. So, Intern physicians and Primary care physicians need to improve their clinical nutrition knowledge, this will allow them to get the most level of nutritional knowledge and skills to provide individuals with the suitable nutritional recommendations and also successfully support patients to enhance their dietary behaviors and health conditions. PHC physicians should have continuous nutrition educational training programs to ensure the continuous provision of sound nutritional advice to patients and the public leading to a positive impact on public health.

**Keywords:** Primary care physicians, Nutrition knowledge, Nutrition education, Nutrition counseling

## INTRODUCTION

In order to prevent and treat diseases, a proper diet is essential. Many patients are aware of this connection and turn to their doctors for advice on nutrition and exercise. However, the nutrition-related components of diseases including cancer, obesity, and diabetes are frequently not adequately addressed in actual physician practice [1]. Doctors may lack enough knowledge of fundamental nutrition science facts and awareness of prospective nutrition interventions if they do not feel competent, at ease, or equipped to offer nutrition advice [2]. Poor diet was the cause of 25.6% of adult fatalities and 17.4% of adult disability-adjusted life years (DALYs) in the Kingdom of Saudi Arabia (KSA) in 2017 [3]. Type 2 diabetes affects 13.2% of the population, raised blood pressure affects 15.2% of the population, and obesity is on the rise. reaching 28.7% of the population [4].

Any research carried out by a medical expert that helps patients alter their eating habits and subsequently their indicators of disease is referred to as nutrition care [4]. Within typical consultations, these procedures may involve nutrition assessment, nutrition guidance, and nutrition

counseling [5]. In other nations, it has been demonstrated that patients' eating behaviors improve when receiving nutrition care from primary care physicians [6]. Patients also view primary care physicians' advice on nutrition as trustworthy and credible, much more so than dietitians' [7].

The majority of family doctors recognize that they play a crucial part in delivering nutrition treatment to patients, particularly when those patients are at risk due to their

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**How to cite this article:** Alqahtani NM, Alqahtani AMM, Alqahtani HMS, Jathmi AYJ, Alqahtani BMS, Alshehri AA, et al. Physicians' Knowledge and practice of Nutrition Education in Health Care Centers of Saudi Arabia: Systematic Review. Arch Pharm Pract. 2022;13(4):30-4. <https://doi.org/10.51847/nHisQ9DMhY>

eating patterns and body mass index [8].

Nutrition-related courses ought to be offered as a part of undergraduate nursing programs or in-service training to equip nurses with adequate knowledge [2].

Several studies showed that primary healthcare physicians' nutrition knowledge about chronic disease management is lacking and nutrition counseling by primary healthcare physicians is being initiated in only about one-third of primary healthcare patients [9].

The most common barriers to initiating nutrition counseling by primary health care physicians are lack of time, poor patient compliance, lack of counseling skills, nutrition knowledge deficit, and lack of reimbursements [10].

### Study Rationale

The healthcare system in KSA must place a high premium on enhancing eating habits at the population level. Therefore, there is a clear opportunity for the primary care workforce in KSA to assist the Saudi populace in adopting good eating habits.

### The Objective of the Study

This study aimed to explore the updated evidence concerning physicians' knowledge and practice of nutrition education in healthcare centers in Saudi Arabia.

## MATERIALS AND METHODS

This systematic review was conducted following the demonstrated guidelines (Preferred Reporting Items for Systematic Reviews and Meta-Analyses, PRISMA).

### Study Design

This was a systematic review.

### Study Duration

The study was conducted during the period from July to October 2022.

### Study Condition

This review investigates the published literature discussing the practice of nutrition education for patients with chronic diseases in primary healthcare centers in Saudi Arabia.

### Search Strategy

A systematic literature search of five major databases, including PubMed, Web of Science, Science Direct, EBSCO, and Cochrane library, was conducted to include the eligible literature. Our search was limited to the English language and was adjusted for each database as required. The eligible studies were determined through the following keywords that were adjusted into Mesh terms in PubMed; "the practice of nutrition education in Saudi Arabia, nutrition education for patients with chronic diseases in Saudi Arabia,

nutrition education in primary health care centers in Saudi Arabia" The appropriate keywords were paired with "OR" and "AND" Boolean operators. The search results comprised English, full-text publications, freely available articles, and human trials.

### Selection Criteria

Our review comprised the studies with the following criteria:

- Mainly cross-sectional, cohort, and retrospective cohort studies and study designs that provided qualitative or quantitative data about nutrition education for patients and all attendees in primary health care centers in Saudi Arabia.

Exclusion criteria included the following:

- Studies not conducted in the English language.
- Studies with no free access.

### Data Extraction

We used Rayyan (QCRI) to detect the duplicate aspects of the search strategy outcomes. The researchers evaluated the titles and abstracts for suitability by screening the pooled search results using a set of inclusion/exclusion criteria. The reviewers assessed the whole texts of the papers that satisfied the requirements for inclusion. The authors engaged in the discussion to settle any disagreements. To include the eligible study, a data extraction form was created. The authors extracted data about the study titles, authors, study year, study design, study population, participant number, the practice of nutrition education for patients with chronic diseases in primary health care centers in Saudi Arabia, and the key findings.

### Risk of Bias Assessment

ROBINS-I tool for non-randomized studies was used for qualitative data synthesis to assess the included research quality. The reviewers investigated any inconsistencies in the quality assessment and addressed them.

### Strategy for Data Synthesis

To provide a qualitative overview of the included research aspects and outcome data, a summary table was presented, including the collected details from the eligible studies. After finishing the data extraction in this systematic review, decisions were made on how to maximize the use of the available data of the included study articles. Studies that met the full-text inclusion requirements but did not provide any data on the practice of nutrition education for patients and all attendees in primary health care centers in Saudi Arabia were excluded.

## RESULTS AND DISCUSSION

The main evidence demonstrated by most of the reviewed studies (**Table 1**) is that primary care physicians have just reasonable nutrition knowledge and are aware of the only basic nutritional knowledge for providing nutrition care to

their patients. The inadequacy of the nutritional curriculum among medical students was reflected in their knowledge, attitudes, and confidence in providing nutritional counseling to patients. So, Intern physicians and Primary care physicians need to improve their clinical nutrition knowledge and would benefit from higher levels of nutrition knowledge and skills to be able to provide patients with

appropriate nutrition advice and to effectively support patients to improve their dietary behaviors and health conditions. They should have continuous nutrition educational training programs to ensure the continuous provision of sound nutritional advice to patients and the public leading to a positive impact on public health.

**Table 1.** Summary of characteristics of the included studies

| Study                                 | Study design                                 | Location  | Sample  | Study Objective  | Key findings   |
|---------------------------------------|--|---|---|--|--|
| Al-gassimi <i>et al.</i> , 2020 [11]  | Cross-sectional study                        | Saudi Arabia                                      | Total of 90 primary care physicians                   | to determine whether providing nutrition treatment to patients with chronic diseases related to diet is correlated with nutrition competence.  | Initially care Despite their reported low availability of nutrition care, doctors believed themselves to be competent in this area. Their confidence in their nutrition expertise and skills was only moderate. Physicians' confidence in their nutrition expertise was highly connected with the reported provision of nutrition care.  |
| Asiri <i>et al.</i> , 2013 [12]       | Cross-sectional study                        | Riyadh, KSA                                       | Total 400 participants                                | In order to evaluate several facets of patients' satisfaction with regard to the health education services offered in Primary Health Care facilities at a major medical centre in Riyadh, Kingdom of Saudi Arabia. | Services for health education received a moderate level of satisfaction. The most popular way to give health education was through one-on-one clinics. The majority of subjects selected doctors to be their source of health information.   |
| Al Shammari <i>et al.</i> , 2021 [13] | A questionnaire-based cross-sectional survey | Saudi Arabia                                      | 124 physicians were included in the study.            | to study the nutritional knowledge, as well as knowledge of primary health-care providers (PHC) employed in Saudi Arabia's Hail City.  | The study received a relatively low number of responses. 75% of doctors thought their knowledge was "good." Likewise, staff who work at PHC facilities had completely ordinary nutritional education and were aware of the fundamental nutritional information food related content, pregnancy, lactation, diabetes, hypertension, etc.  |
| Aldubayan <i>et al.</i> , 2021 [14]   | A cross-sectional study                      | Riyadh, Saudi Arabia                              | A total of 332 physicians were included in the study. | Identifying weaknesses in nutritional knowledge among Saudi physicians may guide them to improve their nutritional knowledge   | The mean score of the physicians' knowledge was low. Physicians who reported that they received some sort of nutritional training or course scored significantly more than physicians who did not receive it.  |
| Alkhalidy <i>et al.</i> , 2019 [9]    | Cross-sectional study                        | Jeddah, Saudi Arabia.                             | A total of 117 physicians were recruited              | to determine the level of nutritional information held by Saudi doctors and to close this information gap in Jeddah, Saudi Arabia, health facilities.  | The average score for nutrition information were low. Saudi doctors performed well on questions on medicine, but they had little knowledge of nutrition-related subjects. The majority of Saudi doctors concurred that it was challenging to treat the dietary needs of malnourished patients.   |
| Bawazir <i>et al.</i> , 2022 [15]     | A cross-sectional study                      | King Abdul-Aziz University, Jeddah, Saudi Arabia. | A total of 100 physician interns were included        | to evaluate the dietary attitude and knowledge of recent King Abdul-Aziz University graduates who work as medical interns.   | Among the knowledge axes, the nutrition and diabetes axis had the highest percentage of accurate responses, whereas the nutrition and heart disease axis had the lowest percentage. The medical nutrition curriculum only satisfied about half of the participants. It could be seen in their skills, dispositions, and assurance when giving patients nutritional advice.                                 |
| Arafa <i>et al.</i> , 2022 [16]       | A cross-sectional Study                      | Riyadh, Saudi Arabia.                             | All family physicians                                 | to investigate primary care doctors' understanding of nutrition and cancer protection, particularly in relation to diet and tumor progression.   | The average score for proper knowledge for physicians is good but lower than anticipated. Primary care physicians therefore have good understanding about the connection between diet and cancer, but not enough; they should participate in ongoing nutrition education and training programmes to guarantee that patients and the general public receive safe and effective nutritional recommendations. |

|                                      |                          |                                 |                        |  |  |
|--------------------------------------|--------------------------|---------------------------------|------------------------|--|--|
| Alomary <i>et al.</i> ,<br>2016 [17] | cross-sectional<br>study | Saudi Arabia                    | 707 PHC<br>physicians. | to evaluate primary health care<br>knowledge and the training needs<br>concerning managing obesity in Saudi<br>Arabia.   | General knowledge about obesity was acceptable. Most of<br>the physicians had not received any specialized courses or<br>training on obesity. The priority of training requested by<br>physicians was counseling on nutrition and exercise. The<br>difference regarding needs for training was not<br>significantly different concerning gender and nationality.   |
| Al-Muammar,<br>2012 [18]             | Cross-sectional<br>study | big hospitals in<br>Riyadh, KSA | 266                    | to examine the management and<br>counselling procedures used by doctors<br>in the area of nutrition, as well as some<br>factors that may predict such practises. | Only 7.9% of those surveyed claimed to be engaged in all<br>facets of nutritional counselling and treatment, such as<br>medical nutrition therapy, therapy, and education. Around<br>13.9 and 40.2% of respondents said they used one or more<br>of these strategies, while 28% admitted they did not use<br>any kind of medical nutrition therapy or counselling. |

Numerous international studies have shown that primary care doctors consider nutrition treatment to be an essential component of their clinical practice [19].

To be able to change their eating behaviors, doctors must establish trust with their patients and explain and comprehend their issues effectively [20].

Physicians had the lowest scores in the components relating to confidence in their knowledge and abilities in nutrition. Dumas *et al.* report is on low nutrition knowledge may be found at [21].

Also, the results of Al-Gassimi *et al.* [11] According to the study, measures that emphasize improving physicians' nutritional abilities and knowledge would result in the largest rise in proficiency. Prospective approaches include a stronger emphasis on care delivery and its critical role in health and ailments in seminars and divisional discussions, the adaptation of dietary assessment methods and standards [22], and a wider assimilation of nutrient skill-building and knowledge into medical experience.

Al-Gassimi *et al.* [11] also indicated that doctors' levels of nutrition expertise varied depending on their professional backgrounds. Among all doctors, FM experts had the highest mean knowledge scores (even higher than FM consultants). Subsequent schooling and completion of their boards (specialist) accreditation, which incorporates best diet instruction, may be to blame for this [23].

Compared to men, female doctors had more confidence in their knowledge of nutrition, which is consistent with earlier findings. This discrepancy may be caused by the fact that female doctors tend to hold longer appointments and are more likely to incorporate healthy behavior changes into normal care [24].

Al-Gassimi *et al.* [11] reported just 29% of doctors said they regularly or frequently advise their clients about eating, which is comparable to the low percentages (22%) found by Khandelwal *et al.* [24] and (19%) described by Dumic *et al.* [8]. Additionally, during a typical visit, 59% of the current cohort spent less than 3 minutes providing nutrition

treatment. So according to Ockene *et al.* [25], the approach to service delivery must last at least 8 minutes to be beneficial. Alarmingly, despite their favorable perceptions of nutrition care, this cohort's level of nutrition care is far lower than what may be anticipated.

Deficient nutrition care delivery would have detrimental clinical effects since many patients would eventually lose out on the chance to get nutrition care, which might help them treat their existing diseases and improve their health. Additionally, it could lessen the influence primary care doctors have on public health. To support improved population health, it is advised that medical education incorporate health behavior change principles more comprehensively. These principles include motivational interviewing and the ability and willingness to change concepts. Senior primary care physicians should also serve as positive role models by providing nutrition care as part of regular clinical practices [26].

Similar studies also indicated that physicians' lack of nutrition counseling was primarily due to a lack of expertise, and there is a clear link between physicians' trust in their nutrition knowledge and communication skills and their provision of nutrition care [27]. These correlations suggest that doctors' behaviors towards nutrition education are most likely to be influenced by their level of nutrition understanding. Therefore, efforts that promote nutrition knowledge and communication are necessary to improve the quality of nutrition care given to patients. Encourage doctors to participate in continuing medical education in nutrition, train them in counseling techniques, and include questions about nutrition care in board and licensure exams for doctors, with a passing score as a minimal standard [11].

Forthcoming research is defensible to improve the nutrition knowledge of physicians through modification of the medical schools' curriculums concerning nutrition and nutritional education, interventions, and professional development through continuing medical education, which results in a greater frequency of nutrition care and improved patient outcomes [28].

## CONCLUSION

Although primary care physicians reported having limited access to nutrition treatment regarding the quantity and duration of each visit, they felt comfortable offering it to patients with diseases linked to food. It is necessary to use tactics that advance nutrition knowledge and abilities to boost doctors' ability to provide nutrition care. To guide continuing medical education and training at medical school, it would be good to reach an agreement on the acceptable degree of dietary knowledge.

**ACKNOWLEDGMENTS:** Many thanks to Dr. Naif Mohammad Alqahtani; Consultant of Preventive Medicine, Department of Public Health, General Directorate of Health Affairs, Assir Region, Saudi Arabia, for his continuous help, support and encouragement to complete this work.

**CONFLICT OF INTEREST:** None

**FINANCIAL SUPPORT:** None

**ETHICS STATEMENT:** None

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