# Nutrition knowledge , attitudes and practices of physicians and medical students

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# آگاهی ، نگرش و عملکرد تغذیه‌ای پزشکان و دانشجویان پزشکی

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## چکیده

**زمینه :** با توجه به نقش مهم تغذیه در سلامتی افراد جامعه و پیشگیری از بیماری‌ها ، به نظر بسیاری از متخصصان میزان واحدهای مربوط به علم تغذیه در برنامهٔ درسی دانشکده‌های پزشکی کافی نیست.

**هدف :** این مطالعه به منظور تعیین میزان آگاهی ، نگرش و عملکرد تغذیه‌ای پزشکان و دانشجویان پزشکی کشور انجام شد.

**مواد و روش‌ها :** دو پرسش‌نامه یکی برای پزشکان و دیگری برای دانشجویان طراحی شد تا موارد فوق ارزیابی شود.

**یافته‌ها :** میزان آگاهی دانشجویان و پزشکان در مورد اصول تغذیه در حد متوسط بود.

**نتیجه‌گیری :** ارتقاء آگاهی تغذیه‌ای در برنامهٔ درسی دانشگاه‌های پزشکی و هنگام فعالیت‌های بالینی ضروری به نظر می‌رسد.

**کلید واژه‌ها :** تغذیه - علم پزشکی - دانشجویان پزشکی - پزشکان

## Abstract

**Background :** *In spite of evidence suggesting that nutrition plays a vital role in the health of every individual as well as the prevention of diseases, nutrition education in the curricula of most medical schools is , in the opinion of the majority of experts in the field , still inadequate.*

**Objective :** *To assess the nutrition knowledge , attitudes and practices of physicians and medical students in Iran.*

**Methods :** *Two questionnaires , one for physicians and one for students , were designed to survey the above-mentioned topics.*

**Findings :** *The findings indicated that while both students and physicians have a moderate knowledge of nutritional principles.*

**Conclusion :** *To bring this goal to realization , nutrition education needs to be re-evaluated and promoted as an important part of the curriculum in medical of universities in Iran.*

**Keywords :** *Nutrition , Medical Education , Medical Students , Physicians*

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## Introduction :

*As we enter the 21st century, we still find that almost 800 million of the world's people, including 70 million children , remain chronically malnourished and nearly 200 million children are underweight.* [8] *Despite the increasingly compelling evidence in past years that nutrition has an important role in pathogenesis and prevention of disease , millions have unbalanced, unhealthy dietary habits which can lead to chronic illnesses including coronary artery diseases , cataracts and diabetes.* [10,11,12] *In order to help guarantee the quality of life for all the world's people , nutrition related disease must be eliminated globally. To materialize and facilitate this goal , nutrition education, which remains limited and inadequate in most medical schools ,* [6,15] *needs to be re-evaluated and promoted as an important part of the curriculum in medical school education.*

*Throughout history , Iranians have demonstrated both a traditional knowledge and layman's interest in the health effects of nutrition and diet , but today , with increasing urbanization and changing patterns of food consumption , the prevalence of diet related metabolic diseases such as cardiovascular diseases , ischaemi heart diseases and cancer have increased significantly throughout the Iranian population.* [4] *Given this new pervasiveness of complex nutritionally related diseases , the need to include nutrition education in medical training programs with emphasis on the special environmental and characteristic dietary factors of Iran is greatly felt. This vital task should be designed to produce qualified health care professionals who can adequately and professionally treat patients suffering from nutrition-related diseases and inform the general public the importance of nutrition in health.*

*The purpose of this small-scale study was to gain understanding of the nutritional knowledge , practices and attitudes among Iranian medical students and physicians and try to relate this understanding to the present the status of medical education in Iran.*

## Methods :

*Our physician study group consisted of 102 physicians in which respondents were*

*from the Free University of Iran in Tehran and 18 from universities outside Tehran and the rest were graduates of three Tehran medical schools. We selected our student group (n : 126) from among medical students at Tehran's Iran University of Medical Sciences (IUMS) and Qazvin University of Medical Sciences , the former being one of the older more established medical universities in the country , and the latter a comparatively recently founded medical school.*

*For collection of data , two questionnaires were prepared , one for medical students , and the other for the practicing physicians. The content and format of the questionnaires were developed according to Gallagher [2,5] and through the use of nutrition and therapeutic test books , validated by our faculty. Questionnaires were distributed personally to students and to physicians at their clinics or at their medial schools.*

*The student questionnaire consisted of four parts. Part 1 included information on demographics (gender , age , personal health habits , etc). Part 2 was designed to assess nutritional practices in which the students were provided four questions and asked to mark their response on a scale ranging from "never" to "always". Part 3 was an assessment of nutritional attitudes consisting of five statements to which the respondents were asked to "agree" or "disagree". Part 4 included 20 multiple choice questions on nutritional knowledge including dietary principles , nutritive content of food , nutrient functions, nutrition and pregnancy , and nutrition status assessment.*

*Physicians' questionnaire consisted of 4 parts , the first consisted of demographic information. Part 2 surveyed general nutrition knowledge through a series of 20 multiple-choice questions covering basic nutrition , dietary principles , food compostition , nutrient function , pregnancy and nutrition and nutritional assessment and 6 question on therapeutic nutrition. Part 3 was a series of questions designed to assess both individual nutrition-related practices (6 questions) and job related practice (6 questions) to which the respondents were ask to express their responses on a scale ranging from "never" to "always".Part 4 assessed the physicians' attitude to a series of 10 statements to which they were asked to respond , "agree" or "disagree".*

## Findings :

*Table 1 is the summary of demographic data on the student group. Of all 90 medical students responding to the questionnaire , all were doing their basic medical education training in which 33 were from IUMS (36.7%) and 57 (63.3%) were from the University of Qazvin. 37.8% were male and 62.2% were female. The average age of our student respondents was 21.57±1.31 of all students. 45.6% did some form of exercise on a regular basis and more than 95% were non-smokers. In addition , the students were asked to report their weight (kg) and height (cm) and to indicate if they believed they were overweight , underweight or just right. This self-reported body image was compared to their BMI. Of those students with a BMI less than 20 , almost 48% had an incorrect body image. Of those with a BMI of 20-25 , 27% had an incorrect body image and of those with a BMI of over 25 , 25% also reported an incorrect body image.*

*Table 2 reports on student responses on personal nutritional practices. Of all medical students 65.78% reported that they occasionally practiced all of the 4 habits on the questionnaire. The most frequent personal practice was "concerned about caloric intake" with 78.8% responding "occasionally" and 43.3% responding that they "never or seldom" chose different or a variety of foods. Over 90% expressed their agreement with the 5 statements assessing nutritional attitude (Table 3) and 96.6% of respondents agreed with the fact that the diet should be adequately balanced ; however , one-fifth of the students expressed their disagreement , that it is better to absorb knowledge about nutrition during leisure time. As it can observed in Table 4 , the total score assessing nutritional knowledge was 70.88%. Students scored highest on questions concerning pregnancy and nutrition (78.53%) and lowest on questions regarding nutritional assessment (50.98%). Statistical analyses of these results indicated that a correlation exists between nutritional knowledge and attitudes ($r = 0.19 - 0.31$ , $P<0.05$). A significant correlation was also observed between nutritional practices and attitudes of students ($r = 0.21 - 0.40$ , $P<0.05$).*

*Table 5 presents the demographic data for the 126 physicians who responded to the questionnaire. Of these , 102 were graduates of universities throughout Tehran, 6 were*

*graduates of the Free Islamic University , 15 were graduates of universities outside Tehran and 3 were unknown. The average age of physicians was 31.27 ± 4.45. Of The respondents , 53.17% were male and 46.82% , female. 50% of the physicians were general practitioners and 50% were residents. More than 58% had been in practice less than 5 years and only 5.55% had been practicing medicine for over 10 years. Half of them reported doing exercises on a regular basis and 85.71% were non-smokers.*

*On nutritional knowledge questions (Table 6) , physicians'answered correctly to 71.81% of the questions on basic nutrition , scoring highest in questions on nutrition and pregnancy with a score of 80.4%. This group scored lowest on questions concerning nutrition assessment with an average score of 59.2%. From the 6 questions on clinical nutrition , the physicians had an average score of 77.9%.*

*Table 7 summarizes physicians' responses to questions concerning personal and professional nutritional practices. Some of the physicians (64.2%) said they occasionally practiced all 6 personal habits on the questionnaire , with 78.57% reporting that they are occasionally concerned about the caloric content of the diet , and only 52.38% saying they occasionally enjoy trying different foods. In the job-related nutrition practices category , only 0.79% of the respondents reported that they usually or always absorb nutritional knowledge in their leisure time. On the average , 64.5% of the respondents reported that they occasionally practiced all of the six statements on job-related habits.*

*Table 8 presents the outcome of physicians' responses to items assessing nutritional attitudes. As it can be observed , the respondents agreed to all ten questions with an average of 94.6%. More than 99% agreed that it is important to have an adequate and balanced diet and also choose a variety of foods. The lowest response rate , at 88.9% agreement , was to the question concerning the necessity of teaching patients to use supplements correctly.*

*Statistical analyses of the results revealed that a correlation exists between nutritional knowledge and attitudes ($r = 0.23 - 0.38$, $P<0.05$). Also , a correlation was found between nutritional practices and attitudes ($r = 0.14 - 0.32$ , $P<0.05$).*

**Table 1. Demographic characteristics of medical students**

| Variable | Number | % |
|---|---|---|
| **Sex** | | |
| Male | 34 | 37.8 |
| Female | 56 | 62.2 |
| **Age** | | |
| < 21 | 16 | 17.8 |
| 21-25 | 72 | 80 |
| > 25 | 2 | 2.2 |
| **Health behavior** | | |
| Smoking | | |
| Yes | 4 | 4.4 |
| No | 86 | 95.6 |
| Exercise | | |
| Yes | 41 | 45.6 |
| No | 49 | 54.4 |
| **Location** | | |
| Iran Univ. Med. Sci. | 33 | 36.7 |
| Univ. of Qazvin | 57 | 63.3 |

**Table 2. Response of medical students to items assessing nutritional practices**

| Question | % Responding Never or Seldom | % Responding Occasionally | % Responding Usually or Always |
|---|---|---|---|
| Are you concerned about calorie content and nutrients in diet | 17.7 | 78.8 | 10.0 |
| Do you choose different kinds and a variety of foods | 43.3 | 52.2 | 0 |
| Do you eat at least 100g of vegetables per day | 24.4 | 67.7 | 3.3 |
| Do you change diet habits or daily meals under certain conditions | 24.4 | 64.4 | 6.6 |

**Table 3. Response of medical students to items assessing nutritional attitudes**

| Statement | % Responding Agree | % Responding Disagree |
|---|---|---|
| It is important to notice if diet is balanced or adequate | 96.6 | 3.3 |
| It is better to change diet habits to prevent or cure certain illnesses | 91.1 | 7.7 |
| It is important to eat at least 100g vegetables per day | 95.5 | 2.2 |
| It is better to choose a variety and different kinds of food | 93.3 | 5.5 |
| It is important to absorb nutritional knowledge during leisure time | 77.7 | 20 |

**Table 4. Responses of student to nutritional knowledge questions**

| Topics | Average Score | % Correct Answers |
|---|---|---|
| Dietary principles (5)* | 3.77 ± 0.87 | 75.52 |
| Nutritive content of foods (4) | 2.67 ± 0.93 | 66.76 |
| Nutrient functions (4) | 3.09 ± 0.86 | 77.35 |
| Nutrition during pregnancy (4) | 3.14 ± 0.83 | 78.52 |
| Nutrition status assessment (3) | 1.53 ± 0.99 | 50.98 |
| Total knowledge | 14.17 ± 2.75 | 70.88 |

*numbers in ( ) represent number of questions for each topic

Table 5. Demogran[illegible] Table 5. Demographic characteristics for physicians

| Variable | Number | % |
|---|---|---|
| **Sex** | | |
| Male | 67 | 53.17 |
| Female | 59 | 46.82 |
| **Age** | | |
| < 35 | 116 | 92.06 |
| 36-45 | 8 | 6.34 |
| > 45 | 2 | 1.58 |
| **Medical specialty** | | |
| General practice | 63 | 50 |
| Resident | 63 | 50 |
| **Years in Practice** | | |
| < 5 | 74 | 58.73 |
| 5-9 | 45 | 35.71 |
| > 5 | 7 | 5.55 |
| **Health behavior** | | |
| Smoking | | |
| Yes | 18 | 14.28 |
| No | 108 | 85.71 |
| Exercise | | |
| Yes | 63 | 50 |
| No | 63 | 50 |
| **Location** | | |
| All Tehran Universities | 102 | 80.95 |
| Free Univ. | 6 | 4.76 |
| Outside Tehran | 15 | 11.9 |
| Unknown | 3 | NA |

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**Table 6. Responses of physicians to nutritional knowledge questions**

| Topic | Average Score | % Correct Answ |
|---|---|---|
| A. Basic Nutrition (20) | 14.24 ± 2.32 | 71.81 |
| 1. Dietary principles (5) | 4.0 ± 1.2 | 80.0 |
| 2. Food composition (4) | 2.45 ± 0.7 | 61.4 |
| 3. Nutrient functions (4) | 2.9 ± 0.92 | 73.4 |
| 4. Pregnancy nutrition (4) | 3.2 ± 1.01 | 80.4 |
| 5. Nutrition assessment (3) | 1.77 ± 0.86 | 59.2 |
| B. Clinical nutrition (6) | 4.67 ± 0.52 | 77.9 |

*clinical nutrition. Correct concepts of diet therapy posed the greatest problem for physicians in all areas of nutritional knowledge in this study.* [9] *Our findings, and those of others, support the hypothesis that nutrition education in medical schools (or the lack of it) may act as a variable factor influencing the knowledge of the physician.*

*While we do not have a breakdown of responses according to each university, other studies have shown that there was a variation in nutritional knowledge among students from different universities.* [6,14] *We believe that if our study was carried out on a larger scale, this variation would also be shown due to different teaching methods, course emphasis and background of the instructors.*

*An interesting finding was that a little over one-third of the students reported an incorrect body image according to their BMI indicating that they were unaware of the correct procedure for determining body mass index. This finding was also reported in other studies. (14)*

*While almost 80% of the students said they were careful about the caloric content of their diet, only a little over half said they eat a variety of food and only one-forth said they ate at least 100g of vegetables daily, indicating that they do not personally heed the basic lesson of nutrition, that is, it is important to have a balanced and adequate diet.*

*A recent workshop that evaluated the practices of primary care physicians from 11 countries found that most physicians were aware of a relation between diet and many common disorders, but had little practical nutritional knowledge and under used the resources of dietitians.* [5] *Krause's findings indicate that while physicians had a favorable and positive attitude toward nutrition, they were less favorable toward the concept of allowing dietitians to assist in prescribing a correct diet. Considering this, an important promotion objective might be to train primary care physicians who provide nutritional assessment and counseling or who refer their patients to qualified nutritionists or dietitians.* [16]

*Considering the findings of this study, it seems that there must be some sort of continuous educational program in nutrition for primary care physicians. Even though*

*the respondents of this study said they prescribe dietary principles in relation to a patients illness or disease and that they also observe the possible interaction of certain drugs with foods , it must be questioned whether they are really up-to-date about drug and food interaction considering the rapid and vast changes in this area occurring almost daily.*

*The application of basic , clinical nutrition knowledge is an absolute necessity in the medical care of patients and whether nutrition course work should be taught primarily in the basic science or clinical years has received considerable attention. Research in this subject is under investigation. It is recomended that additional courses on clinical nutrition with emphasis on hospital care must be taught during later years of medical school training in Iran.*

## Acknowledgement :

*The authors wish to thank Judy Garland for editing and typing of the manuscript. They also thank the students Research Committee of Qazvin university of Medical Sciences for their collaboration.*

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