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The Nutrition Knowledge of Primary Care Physicians in the State of Qatar

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Abstract: To determine the nutritional knowledge of primary care physicians. A validated questionnaire with multiple-choice questions were distributed to 136 physicians, working in various health care centers in the state of Qatar between Jan 2009 to Jun 2009. Completed questionnaire were received from 136 of 225 physicians (60.4% the mean score for correctly answered questions was (64%). Approximately 19% of the physicians describe their knowledge of nutrition as very good, 60% as moderate and 21% as poor. The results indicate that physicians are generally aware of nutritional information related to common prevalent topics related to nutrient believed to help prevent thrombosis Major type of fat in olive oil, the preventive action of fruits and vegetables against cancer, toxic vitamins if consumed excessively and the nutrients associated with the prevention of neural tube defects. In contrast physicians showed poor knowledge regarding other important topics in nutrition, such as the role of soluble fibers in lowering blood cholesterol, the lowest glycemic index foods, the main fatty acid formed in the egg, substance raises the blood HDL-cholesterol level and the association between excess protein intake and calcium less. These results showed that physicians need more education in nutrition. Nutrition should be an essential part in the continuing medical education.

Key words: Physician, nutrition knowledge, nutrition education

INTRODUCTION

Nutrition is necessary for growth and developments. Nutrition helps one to be resistant to disease and live a long and healthy life by keeping the mind and body working at the highest level (Baysal, 1989; Teko, 1999). The role of nutrition in health promotion, disease prevention and treatment of chronic disease is well recognized (Hu *et al.*, 1997; Schaller and James, 2005). Nutrition knowledge is one of the factors that affect the nutritional habits of an individual, families and communities (Koksal and Kirli, 1988). A study revealed a long history of lack of nutritional knowledge among physicians (Krause and Fox, 1997). At Southampton University in England, a survey of physicians revealed that most of the physicians rated their nutrition knowledge as "poor" or very poor" (Heywood and Wootton, 1992). Similar studies with physicians working in Alberta, Canada revealed that 42% described their knowledge in nutrition as weak (Temple, 1999). In other tests of nutritional knowledge a 1989 study of physicians in California (Mlodinow and Barret-Conner, 1998) reported a correct response rate of 69.2%. A survey of physicians in USA revealed that many more physicians would give dietary counseling to their patients. Also experienced some problems (Kushner, 1995). Lack of nutrition knowledge among 62% was noted as one of the major hurdle among physicians. Other major barriers include inadequate counseling skills, lack of time and poor patient compliance. In another study carried out in Riyadh, Saudi Arabia, it was found that the

mean score for correctly answered questions was 51.7%. Approximately 75% of the physicians described their knowledge as "poor" (Al-Numair, 2004). As there is no published data in nutritional knowledge among physicians in the state of Qatar, the purpose of this current study was to assess the nutrition knowledge of primary care physicians working in Qatar.

MATERIALS AND METHODS

This research was conducted among 136 physicians (73 males, 63 Females) working in all primary health care centers in the state of Qatar between Jan 2009 to Jun 2009. The research data were collected by means of a Questionnaire. The questionnaire form was composed of two sections. Part 1 was a demographic survey in which the respondents were asked about their sex, age, years of education and whether they have any area of specialty. Part 2 was a knowledge survey. There were 20 questions, each of which had three choices, in the nutrition knowledge section. The questionnaire was sent to physicians together with a consent form. The knowledge questionnaire was adapted and modified from Temple (1999) and Al-Numair templates (2004). The 20 questions on which the results were based are given in Table 1. Each correct answer was assigned 1 point and the nutrition knowledge level was assessed out of 20 total points. Accordingly, the nutrition knowledge levels were scored as follows: 15-20 points, very good, 10-14 points moderate and 10 points and below as poor.

Table 1: Nutrition knowledge questionnaire

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1. What type of dietary fiber is helpful in lowering the blood cholesterol level?
 - a. Soluble fiber*
 - b. Insoluble fiber
 - c. Cellulose
 2. Excess of which nutrient may increase body calcium loss:
 - a. Protein*
 - b. Saturated fat
 - c. Sugar
 3. A nutrient believed to help prevent thrombosis is:
 - a. Omega-3 fat*
 - b. Mono un saturated fat
 - c. Vitamin C
 4. The adequate intake level of calcium for adult aged 51-70 years:
 - a. 500 mg/day
 - b. 1200 mg/day*
 - c. 2000 mg/day
 5. The major type of fat in olive oil is:
 - a. Saturated fat
 - b. Poly saturated fat
 - c. Mono un saturated fat*
 6. Compared with unprocessed vegetable oil, hydrogenated fats contain:
 - a. More polyunsaturated fat
 - b. More trans fats*
 - c. More cholesterol
 7. Which nutrient is protective against hypertension?
 - a. Potassium*
 - b. Chorine
 - c. Iron
 8. Which vitamin is likely to be toxic if consumed in the excess amount for long period of time?
 - a. Vitamin C
 - b. Vitamin A*
 - c. Vitamin D
 9. The most concentrated source of vitamin B12 is:
 - a. Fruit
 - b. Whole grains cereals
 - c. Meat*
 10. Which substance raises the blood HDL-Cholesterol level?
 - a. Animal Protein
 - b. Riboflavin
 - c. Alcohol*
 11. In general, Dietary recommendations are intended to:
 - a. Maximum food efficiency
 - b. Maintain public health*
 - c. Increase athletic performance
 12. Type of food believes to have a preventive effect on various types of cancer is:
 - a. Fruits and vegetables*
 - b. Milk
 - c. None of the above
 13. The number of Kilocalories in one gram of fat is:
 - a. 4
 - b. 7
 - c. 9*
 14. Which of the following is not an antioxidant nutrient?
 - a. Vitamin E
 - b. Beta-Carotene
 - c. Zinc*
 15. The nutrient strongly associated with the prevention of neural tube defects is:
 - a. Beta-Carotene
 - b. Folate*
 - c. Vitamin C
 16. Short term(diet) plans are usually successful at achieving weight loss because they:
 - a. Decrease appetite
 - b. Cause the body to lose water*
 - c. Burn large amount of stored fat
-

Table 1 Cont.

17. Which of the following foods is a rich source of lycopene?	a. Milk b. Tomatoes* c. Cauliflower
18. Which of the following food has the lowest glycerine index?	a. Ice cream* b. Rice c. Banana
19. Which of the following is the main fatty acid in the egg?	a. Monounsaturated* b. Polyunsaturated c. Saturated
20. How is the body weight of an adult whose BMI is in between 25.0-29.9 kg/m ² rated?	a. Under weight b. Normal weight c. Over weight*

Table 2: Questions asked, correct answers and percentage of physicians with correct answers

Q #	Questions	Correct answer	Correct %
01	Type of dietary fiber is helpful in lowering the blood cholesterol level	Soluble Fiber	40
02	Excess of which nutrient may increase body calcium loss	Protein	37
03	Nutrient believed to help prevent thrombosis	Omega -3 fat	82
04	Adequate intake level of calcium for adult aged 51-70	1200 mg / day	66
05	Major type of fat in olive oil is	MUSF	91
06	Hydrogenated fats contain	More trans fats	55
07	Nutrient is protective against hypertension	Potassium	79
08	Vitamin is likely to be toxic if consumed in the excess amount	Vitamin A	78
09	Most concentrated source of vitamin B12	Meat	52
10	Substance raises the blood HDL-Cholesterol level	Alcohol	41
11	In general, Dietary recommendations are intended to	Maintain Public Health	85
12	Foods have a preventive effect on various types of cancer	Fruits and Vegetable	86
13	Number of Kilocalories in one gram of fat	9	83
14	Nutrient is not an antioxidant	Zinc	72
15	Nutrient associated with the prevention of neural tube defects	Folate	94
16	"diet" plans are usually successful at achieving weight loss	Cause the body to lose water	57
17	Foods is a rich source of lycopene	Tomatoes	57
18	Food with lowest glycemic index	Ice cream	10
19	Which of the following is the main fatty acid in the egg	MUFA	08
20	How is the body weight of an adult whose BMI is in between 25.0-29.9 kg/m ² rated	Overweight	92

The research data were analyzed by means of the SPSS (Statistical Package Social sciences) program. Descriptive statistics were used to display data in frequencies, percentages and mean. In evaluating the nutrition knowledge level, gender, age, educational status, were taken as explanatory variables. As statistical analyses, the Chi-square significance test, t-test, the one way (ANOVA) variance analysis were applied.

RESULTS AND DISCUSSION

Of the 225 Primary care physicians approached, 136 replies were received (60.4%). Demographic information about the physicians who were involved in this study is presented in Table 3. The Majority of physicians were >40 years (61%) and (39%) were <40 years. 54% of them were male and 46% were female. It was determined that (61%) of the participating physicians were specialized and 39% were general practitioners. 21% of the physicians had educational level of less than 10 years and 42% and 37% had 11-20 years and more than 20 years of education respectively.

Table 2 shows the simplified form of the questions and the percentage of correct answers. The mean mark for correctly answered questions was 63.9%; approximately half of primary care physicians scored more than 65% and described their knowledge of nutrition as "Moderate". As can be seen in Table 2, 10 out of the 20 questions were answered correctly by more than 70% of the physicians, (3, 5, 7, 8, 11, 12, 13, 14, 15 and 20) while 2 questions were answered by less than 10% (18, 19) and five questions were answered correctly by less than 50% (1, 2, 10, 18, 19).

The best known item (answered correctly at the highest rate) by physicians is that "Folates the nutrient strongly associated with the prevention of neutral tube defect" (94.1%). This is followed by "an adult whose BMI is in between 25.0-29.9 kg/m² is over weight (91.9%) and the major type of fat in olive oil is Monosaturated fat." (91.2%).

The physicians involved in this study have the least knowledge about the main fatty acid in the egg and the lowest glyceric index food 8.1% and 9.6% respectively. Two other items that physicians have little knowledge

Table 3: Some demographic information about the physicians

	Number	Percentage
Gender		
M	73	54
F	63	46
Age		
≤40	53	39
>40	83	61
Specialization		
Specialized	83	61
Not Specialized	53	39
Length of time since graduation (years)		
<10	29	21
11-20	57	42
>20	50	37
Score		
Poor <50	29	21
Moderate 50-70	81	60
Good >70	26	19

about are that alcohol increases the HDL cholesterol levels (40.4%) and that soluble fiber helps drop blood cholesterol levels (41.2%).

The nutrition knowledge levels of the physicians according to the explanatory variables shows that the highest rates of good nutrition knowledge are in the following groups males who are specialized and those who has 10 years of post university education.

The overall average score of nutrition knowledge among the physicians who participated in the research was 64%. The breakdown was (64.5%) among males and (63.2%) among females.

The response rate of 63.9% in this current study was higher than what was reported by Flynn *et al.*, 2003 of 16%, as well as what was reported among primary care physicians in Taiwan of 27% (Hu *et al.*, 1997). In another survey of nutrition knowledge of physicians carried by Temple (1999) in Canada and Mlodinow and Barret-Conner in California (1998) the response rate was observed as 36% and 40% respectively. While it was 56.2% in a study carried out in Saudi Arabia by Al-Numair (2004).

The mean score for correctly answered questions in this current study was 63.9% and achieved in the survey of Nutrition knowledge was relating to the score of (63%) which was of physicians in Canada (Temple, 1999) which was higher than what was reported by Kirby *et al.* (1995) in a study of family practice residents in Texas and what was achieved by Al-Numair (2004) in a study of nutrition knowledge of primary care physicians in Saudi Arabia.

Other comparable studies reported in California by (Mlodinow and Barret-Conner, 1998) had a mean score for correctly answered questions of 69% rather than the score achieved in the present study. However the questions of true-false indicating that chance would have increased the score in this study.

The results of the current study in Table 2 indicate that physicians are aware of information publicized in medical press (Notably questions, 3, 5, 7, 8, 11, 12, 13,

15 and 20). This trend was similar to what were reported by Temple (1999) and Mlodinow and Barret-Conner (1998) in their studies. However, low number of physicians gave the correct answer to questions 1, 2, 10 score was (≤40%). Surprisingly a very low number of physicians were answered question 18 and 19 correctly score (≤40%) and poor knowledge of other important topics in nutrition (question 6, 9, 10, 16) was also found. This trend was similar to what were reported by Al-Numair (2004) in his study.

Overall results indicate that there are gaps in nutritional knowledge among average physicians. Many physicians do not have the expertise to properly advice their patients in particular the role of nutrition in causing, prevention and therapy of diseases (e.g, the role of diet in hyper cholesterolemia osteoporosis and diabetes).

On the whole the evidence from the study clearly indicates that the primary care physicians need more education in nutrition. Nevertheless, nutrition should be first and foremost an essential part in continuing medical education.

Conclusion: The result of the research indicates that the nutritional knowledge level of physicians is insufficient. The average knowledge scores are higher for men than women, for those specialized than non-specialized and for those who graduated from university ten years or less than the other groups.

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