

<http://www.pjbs.org>

PJBS

ISSN 1028-8880

**Pakistan
Journal of Biological Sciences**

ANSI*net*

Asian Network for Scientific Information
308 Lasani Town, Sargodha Road, Faisalabad - Pakistan

General Physicians' Knowledge about Nutrition in Shiraz, Iran

¹A. Ahmadi, ¹M. Ershad, ²H. Givzadeh and ^{3,4}A. Mohammad-Beigi

¹Department of Nutrition,

²Department of Health,

³Department of Epidemiology, School of Health and Nutrition,
Shiraz University of Medical Sciences, Shiraz, Iran

⁴Department of Epidemiology, Paramedical School, Arak University of Medical Sciences, Arak, Iran

Abstract: Several studies have indicated a poor nutritional knowledge among physicians, thus a survey was carried out to determine the nutritional knowledge of physicians working in general and private practice (governmental and non-governmental centers, respectively) in Iran. Data were collected by means of a questionnaire including multiple-choice questions. The study was conducted among randomly selected 200 physicians (male: 140, female: 60) working in clinics related to the Ministry of Health and Medical Education (MOHME). The responses of the physicians to the questions about nutrition (particularly hypertension, diabetes and obesity) were evaluated by scoring them. The average scores of the nutrition knowledge level of the male and female physicians were 9.61 ± 2.63 and 9.61 ± 2.85 , respectively. It was found that the nutrition knowledge level of just 13.1% of the physicians was mediocre and 86.9% was poor. The results indicate that physicians don't have enough knowledge about important topics in nutrition such as diet therapy in topics mentioned; therefore they need more education in nutrition.

Key words: Physicians, nutritional knowledge, hypertension, diabetes, obesity

INTRODUCTION

The role of nutrition in health promotion, disease prevention and treatment of chronic diseases is well recognized (Schaller and James, 2005). Nutrition is cited as the most controllable risk factor affecting long-term health (Warber *et al.*, 2000). Diet is now considered to play a substantial role in the etiology of many chronic degenerative diseases such as coronary heart disease, atherosclerosis, non-insulin dependent diabetes mellitus, osteoporosis and some types of cancer (Turrell, 1997). Most individuals generally regard their physicians as the primary source of nutritional information (Hu *et al.*, 1997), whereas according to the following studies, the nutrition knowledge of physicians is inadequate. Because of poor nutritional information of physicians, nutrition has been ignored as a helpful factor in accelerating health care process. Therefore, the result is a few nutritional consultation orders in medical records of the patients (Waitzberg *et al.*, 2001) and increased incidence of malnutrition in hospitals (Waitzberg *et al.*, 2001; Rasmussen *et al.*, 2004).

Hu *et al.* (1997) investigated nutritional knowledge among primary care physicians in Taiwan. The physicians

mainly scored higher on general knowledge than on clinical nutrition, indicating inadequate clinical and practical nutritional knowledge. Gallagher and Vivan (1979) and Al-Zahrami and Al-Raddadi (2009) also supported this finding. Similar studies in Alberta, Canada revealed that 42% of physicians described their knowledge on nutrition as weak (Temple, 1999). In another study carried out in Riyadh, Saudi Arabia; it was found that the mean score for the correctly answered questions was 51.7% and approximately 75% of the physicians described their knowledge as poor (Khalid Al-Numair, 2004).

In addition several studies have indicated that medical students receive relatively little education in nutrition (Temple and Burkitt, 1994). The number of US medical schools with a required nutrition course fell from 46 in 1982 to 27 in 1995 (Feldman, 1995). However, there is much less information concerning the nutritional knowledge of practicing physicians. Another study (Noumohammadi and Goharabari, 2001) carried out in Iran indicated that both students and physicians have moderate nutritional principles.

A survey of American physicians revealed that many more physicians would give dietary counseling to

their patients except for the problem of various barriers. Sixty-two percent felt that lack of knowledge about nutrition was one such barrier. Other major barriers included lack of time, poor patient compliance, inadequate counseling skills and lack of adequate reimbursement (Kushner, 1995).

The aim of the present study was to assess the nutrition knowledge of primary care physicians working in general and private practice in Shiraz, Iran.

MATERIALS AND METHODS

This study, carried out within 6 months in 2006 and approved by review board of Student Research, was conducted among 200 physicians (male: 140, female: 60) who were selected with systematic random sampling method, according to a list organized by physicians medical council numbers. The list also indicated primary care (general) physicians working in general and private centers in Shiraz related to Ministry of Health and Medical Educations.

The data were collected by means of a questionnaire which was composed of two sections (Ozfer Ozcelik *et al.*, 2007). Part 1 was a demographic survey including 10 questions in which the respondents were asked about their gender, age, number of years after graduation, name of medical school, working in general and private centers and previous nutrition education regarding hypertension, diabetes and obesity, amount of studying nutrition related textbooks, rate of participation in seminars related to these topics and using internet. The second part of the questionnaire was a nutrition knowledge survey including 30 multiple choice questions (10 about obesity, 11 about diabetes and 9 about hypertension), shown in Table 1, each was assigned 0.66 point if correctly answered. The questions, asked in Persian were gathered from nutrition and therapeutic textbooks and validated by Department of Nutrition, Shiraz University of Medical Sciences, Shiraz, Iran. A pilot study was conducted for the reliability of the questionnaire on 50 physicians (25 male; 25 female) ($\alpha = 0.69$). After this study, three questions were omitted (one on obesity and two in hypertension). The Questionnaires were distributed to the physicians at their clinics. Accordingly, nutritional knowledge levels were scored as follows: 17-20 points, very good; 13-16 points, good; 9-12 points, mediocre; 8 points and below, poor (Ozfer Ozcelik *et al.*, 2007).

The data were analyzed by SPSS (Statistical Package Social Sciences) version 11.5 computer. Descriptive statistics were used to display data in mean values. In evaluating the nutrition knowledge level, gender, age,

Table 1: Nutrition knowledge questionnaire

No.	Question	Correct answer
1	The micro minerals effective in controlling Hypertension	K,Ca,Mg
2	The food groups suggested in hypertension	Fruit,Veg.
3	Recommended sodium intake in Hypertension	<2.4 g day ⁻¹ (6 gram salt)
4	Nutrient believed to reduce the rate of CVD	w-3
5	The food with lowest sodium	Rice
6	The kind of oil not suggested in Hypertension	Sun seed oil
7	The food rich in cholesterol	Whole milk
8	The fruit suggested in hypertension	Banana,grapefruit ,raisin
9	Type of diet for prevention of hypertension	Low fat, low fat diary, high fruit and veg
10	According to ADA the food that has more effect on blood sugar	Amount of CHO
11	Best type of protein in diabetic patients	Animal and plant protein
12	Diet plan for Diabetic children	Free CHO and Fiber
13	Best type of carbohydrate for diabetic patients	Low GI index
14	The proportion of the daily total energy recommended protein intake for diabetic patients without renal disease	10-20%
15	Recommended protein intake (g/kgBW) for Diabetic patients with nephropathy	0.8
16	The proportion of the daily total energy that recommended for SFA for diabetic patients	<7%
17	Best type of Fatty acid for diabetic patients	MUFA
18	Major source of MUFA	Olive oil
19	Percent of SFA in diabetic diets	<10%
20	The food which decreases glucose absorption	Apple
21	In the first week of low calorie diet, the component of the body that reduces more	Water
22	Amount of appropriate weight loss in 6 months after low calorie diet	10%
23	Amount of calorie intake in extremely low calorie diet	<800 Kcal
24	Calorie of diet that vitamin and mineral supplements are prescribed	<1200 for female, <1800 for male
25	Max weeks for extremely low calorie diet	12-16
26	Max proportion of the daily total energy that could come from protein in a low calorie diet	25%
27	The standard (criteria) used when weight and height curves are not available	Hamwi and wrist (circumference)/Ht
28	The food eliminated in low calorie diet	non
29	Obesity according to BMI	>30
30	According amount of calorie for weight reduction	<1500

educational status and the number of year after graduation were taken as explanatory variables. As statistical analyses, the t-test and spearman correlation coefficient were applied.

RESULTS

From the 200 eligible physicians, 176 replies were received (88%), 131 men and 42 women. 61.4% of the physicians worked in general centers, 29% worked in private centers and 7.4% worked in both places. The average age of the participants was 37.96±6.65. The mean of number of years after graduation was 12.18±11.91 and the mean of hours of studying during the week were 6.63±5.29 h.

The responses of the physicians to the questions on nutrition were evaluated by the method of scoring them. The average scores of the male and female physicians in this regard were 9.61 ± 2.63 and 9.61 ± 2.85 , respectively. It was found that the nutritional knowledge level of 13.1% of the physicians was mediocre and that of 86.9% was poor. No physician was scored as good or very good.

There were no remarkable differences between gender and the physicians' scores on nutrition in regards to hypertension, diabetes and obesity ($p > 0.05$) (Table 2). In addition there was no significant difference between working in general or private practice and both and the physicians nutritional knowledge ($p > 0.05$).

Statistical analysis of the results revealed that a negative correlation existed between age, number of years after graduation and score on hypertension and also between age, number of years after graduation and score on obesity, indicating that increase in age and number of years after graduation, significantly decreased nutrition knowledge in hypertension and obesity (Table 3). Mean hours of studying per week and the score gained of nutrition knowledge in each field had a positive correlation, showing that the more hours the physicians studied during the week the higher were their scores on the three nutritional topics investigated ($p = 0.04$, $r = 0.165$). As shown in Table 3, a positive correlation existed between age, number of years after graduation and score on diabetes.

There was no significant differences between studying nutrition related text books and the physicians scores ($p > 0.05$). Statistical significant differences was only seen in using internet and participating in seminars related to diabetes ($p < 0.001$), but not in the other two topics ($p > 0.05$).

Table 2: Physicians score of nutritional knowledge in fields of hypertension, diabetes and obesity according to their gender

Subject of the question	Male	Female	p-value
Hypertension (9)*	1.08 ± 2.74	1.25 ± 2.8	0.73
Diabetes (11)	3.92 ± 1.65	3.85 ± 1.64	0.82
Obesity (10)	2.95 ± 1.42	2.95 ± 1.49	0.99
Total score	9.61 ± 2.63	9.61 ± 2.85	0.99

*No. in parenthesis represent No. of questions for each topic. Data are expressed as Mean \pm SD

Table 3: Correlation between ages, years after graduation and mean hours of studying per week and knowledge score of each diseases

Variables	Hypertension score		Diabetes score		Obesity score	
	r	p-value	r	p-value	r	p-value
Age	-0.0152	0.04	0.010	0.89	-0.145	0.05
No. of years after graduation	-0.5050	0.05	0.600	0.44	-0.171	0.02
Mean hours of studying per week	0.20300	0.10	0.074	0.38	0.144	0.08

DISCUSSION

The education of nutrition to Iranian medical students is limited to only 36 h out of 7 years of studying which covers the principles of nutrition and contemporary topics taught within the first year of college. It seems that in order to achieve academic excellence in this field, in addition to increasing the nutrition courses for medical students, a good quality medical education program must also be designed not only to train students and physicians but also to encourage them to emphasize the role of nutrition in health to their patients (Young, 1992; Gugnano *et al.*, 2001; Weinseier *et al.*, 1986). Therefore, it is strongly recommended that additional courses on clinical nutrition with emphasis on hospital care must be thought during later years of medical school training in Iran.

Nutrition counseling by physicians can improve patients' dietary behaviors and is affected by physicians' nutrition practices and attitudes, such as the perceived relevance of nutrition counseling (Spencer *et al.*, 2006); therefore physicians should increase their information on the importance of nutrition and diet therapy on degenerative diseases such as diabetes, hypertension and obesity.

As noted present study indicated that the nutritional knowledge level of most of the physicians was poor. The results are in contrast with those of Ozfer Ozcelik *et al.* (2007) that showed nutrition knowledge level of 60% of the physicians was mediocre, 33.8% was poor and 6.2% was good. Indicating that the nutrition knowledge level of physicians in Iran is inadequate and there are serious gaps in their nutritional information.

As shown in this study reverse significant correlation were indicated between the scores of nutritional knowledge on hypertension and number of years after graduation and age which may be due to the fact that diet therapy in hypertension is recently being noticed and physicians who were graduated before 1999 have limited information about the Dietary Approaches to Stop Hypertension (DASH) diet. This diet has shown an effective role in lowering blood pressure (Chen *et al.*, 2009). Such a reverse correlation between number of years after graduation, age and obesity was also noted. Inadequate information of physicians might be due to less connection with academic and educational centers and thus not being informed about the recent information on nutritional therapy in these regards.

Primary care physicians have the potential to decrease morbidity and mortality for many chronic diseases if they provide effective nutrition counseling (Eaton *et al.*, 2003; Brotons *et al.*, 2003). Nutrition

counseling provides a strategy for not only reducing patient suffering, but also for reducing the health care costs associated with these illnesses (Nicholas *et al.*, 2003). Most physicians are aware of nutrition in managing chronic disease (Coombs *et al.*, 2004), but may not routinely include nutrition in their practice. This might be because of lack of information as the results of present study indicated that nutrition knowledge of physicians on hypertension and obesity is limited. However, physicians' scores on diabetes were higher in comparison to the other two topics and they participated more in seminars related to diabetes which indicates that they are aware of the role of nutrition in controlling diabetes.

As shown the nutritional knowledge of physicians in this study according to their scores was reported as poor, this result is in consistence with the studies of Temple (1999) and Heywood and Wooton (1992) have revealed that nutritional knowledge of most physicians participating in the studies was mainly rated as poor or very poor. This finding need to be considered since the prevalence of these degenerative diseases are high all over the world and the fact that they are among the most causes of death, thus physicians should pay heed to their importance.

CONCLUSION

Overall, the results of this study indicate that there are some serious gaps in the nutritional knowledge of the average physician and that physicians' nutrition knowledge is inadequate in Iran, therefore more training in nutrition fields are necessary. In particular, many physicians do not have the expertise to properly advise their patients on important aspects of the role of nutrition in the causation, prevention and therapy of different diseases. Nutritional needs in various diseases should be properly integrated into the medical school curriculum and there should be continuous educational programs on nutrition and diet therapy for physicians.

ACKNOWLEDGMENTS

We thank all the general physicians who gave up time to participate in this study, as well as Student Research Committee of Shiraz University of Medical Sciences for supporting the fund for this study and Medical Council for providing the list of general physicians' names. This research also would not have been possible without the valuable help of Amin Salehi and Maryam Shaghaghian in data gathering.

REFERENCES

- Al-Zahrami, A.M. and R.M. Al-Raddadi, 2009. Nutritional knowledge of primary health care physicians in Jeddah, Saudi Arabia. *Saudi. Med. J.*, 30: 284-287.
- Brotos, C., R. Ciurana, R. Piñeiro, P. Kloppe, M. Godycki-Cwirko and M.R. Sammut, 2003. Dietary advice in clinical practice: The views of general practitioners in Europe. *Am. J. Clin. Nutr.*, 77: 1048-1051.
- Chen, Z.Y., C. Peng, R. Jiao, Y.M. Wong, N. Yang and Y. Huang, 2009. Anti-hypertensive nutraceuticals and functional foods. *J. Agric. Food Chem.*, 57: 4485-4499.
- Coombs, J.B., A. Barrocas and J.V. White, 2004. Nutrition care of older adults with chronic disease: Attitudes and practices of physicians and patients. *South Med. J.*, 97: 560-565.
- Eaton, C.B., P.E. McBride, K.A. Gans and G.L. Underbakke, 2003. Teaching nutrition skills to primary care practitioners. *J. Nutr.*, 133: 563-566.
- Feldman, E.B., 1995. Networks for medical nutrition education: A review of the US experience and future prospects. *Am. J. Clin. Nutr.*, 62: 512-517.
- Gallagher, C. and V.M. Vivan, 1979. Nutrition concepts essential in the education in the education of the medical student. *Am. J. Clin. Nutr.*, 32: 1330-1333.
- Gugnano, M.T., D. Merlitti, V. Pace-Palitti, M.R. Manigrasso and S. Sensi, 2001. Clinical nutrition: inadequate teaching in medical schools. *Nutr. Metab. Cardiovasc Dis.*, 11: 104-107.
- Heywood, P. and S.A. Wootton, 1992. Nutritional knowledge and attitudes towards nutrition education in medical students at Southampton University Medical School. *Proc. Nutr. Soc.*, 51: 67-67.
- Hu, S.P., M.Y. Wu and J.F. Liu, 1997. Nutrition knowledge, attitude and practice among primary care physicians in Taiwan. *J. Am. Coll. Nutr.*, 16: 439-442.
- Khalid Al-Numair, S., 2004. Nutrition knowledge of primary care physicians in Saudi Arabia. *Pak. J. Nutr.*, 3: 344-347.
- Kushner, R.F., 1995. Barriers to providing nutrition counseling by physicians: Survey of primary care practitioners. *Prev. Med.*, 24: 546-552.
- Nicholas, L., D.C. Roberts and D. Pond, 2003. The role of the general practitioner and the dietitian in patient nutrition management. *Asia Pac. J. Clin. Nutr.*, 12: 3-8.
- Nourmohammadi, I. and M.H. Goharabari, 2001. Nutrition knowledge, attitudes and practices of physicians and medical students. *J. Ghazvin Univ. Med. Sci.*, 19: 68-80.

- Ozfer Ozcelik, A., S. Metin Saip and A. Lale Sariye, 2007. Survey on the nutrition knowledge level of Turkish physicians: Ankara as a sample. *Pak. J. Nutr.*, 6: 538-542.
- Rasmussen, H.H., J. Kondrup, M. Staun, K. Ladefoged, H. Kristensen and A. Wengler, 2004. Prevalence of patients at nutritional risk in Danish hospitals. *Clin. Nutr.*, 23: 1009-1015.
- Schaller, C. and E.L. James, 2005. The nutritional knowledge of Australian nurses. *Nurse Educ. Today*, 25: 405-412.
- Spencer, E.H., E. Frank, L.K. Elon, V.S. Hertzberg, M.K. Serdula and D.A. Galuska, 2006. Predictors of nutrition counseling behaviors and attitudes in US medical students. *Am. J. Clin. Nutr.*, 84: 655-662.
- Temple, N.J. and D.P. Burkitt, 1994. Western Disease. In: *Organized Medicine. An Ounce of Prevention or a Pound of Cure*, Temple, N.J. and N.J. Totowa, (Eds.). Humana Press, Berlin, pp 381-398.
- Temple, N.J., 1999. Survey of nutrition knowledge of Canadian physicians. *Am. Coll. Nutr.*, 18: 26-29.
- Turrell, G., 1997. Determinants of gender differences in dietary behavior. *Nutr. Res.*, 17: 1105-1120.
- Waitzberg, D.L., W.T. Caiaffa and M.I.T.D. Correia, 2001. Hospital malnutrition: The Brazilian National Survey (IBRANUTRI): A study of 4000 patients. *Nutrition*, 17: 573-580.
- Warber, J.I., J.P. Warber and K.A. Simone, 2000. Assessment of general nutrition knowledge of nurse practitioners in New England. *J. Am. Diet. Assoc.*, 100: 368-370.
- Weinseier, R.L., J.R. Boker, E.B. Feldman, M.S. Read and C.M. Brooks, 1986. Nutrition knowledge of senior medical students: A collaborative study of Southeastern medical schools. *Am. J. Clin. Nutr.*, 43: 959-968.
- Young, E.A., 1992. National dairy council award for excellence in medical/dental nutrition education lecture. Perspective on nutrition in medical education. *Am. J. Clin. Nutr.*, 56: 745-751.