ORIGINAL ARTICLE

Assessment of Knowledge and Attitude of PHC Providers Toward Basic Nutrition and Physical Activity Information

Maher Jawad Kadhum,[1] Waleed Arif Al-Ani[2] and Israa Umran Al-Saady[1]

ABSTRACT

Objective: To assess the knowledge of PHC providers in PHCC about healthy food, nutrition assessment methods, physical activity and their relation to physical and mental health.
Setting: Primary Health Care Centers in four districts in Hillah City.
Methods: Survey using structured, self–administered questionnaire consisting of close-ended questions on knowledge of groups of food and information about description of healthy diet and physical activity was distributed to 110 health workers (58% of them were males and 42% females) during the period from 1st February 2011 to 31st May 2011.
Results: 26% of the health workers were trained on nutritional aspects, 54% of them knew the definition of malnutrition and only 19% of them were aware of nutritional assessment methods. Regarding their knowledge about healthy diet, 55% of them had complete information, 72% recognized that fruits and vegetables should be consumed less than 3 times daily and 80.9% knew the meaning of whole grains, while 94% described vegetable oil as the more healthy type and more than half had information on milk and its products (skimmed type as the best). The relation between diet and diseases was recognized by almost all of them. Physical activity was related to health and fitness in half of the health workers. 98% agreed on social and family support role and about the same percentage (92%) advised <5 days of sports per week and the best duration of walking was described as <30 minutes daily (84%), and walking on feet was considered to be the best way of transportation (65.5%).
Conclusion: It is concluded that the PHC workers have little knowledge regarding nutrition, malnutrition, methods of nutritional assessment and diet. There is a deficiency in knowing the details of physical activity that highlights the importance of and need for more nutritional education to raise their knowledge in this aspect. Health workers, therefore, need more training and workshops. There is a dire need to establish nutritional units in all PHC centers.

INTRODUCTION

Healthy diet is defined as the diet that ensures better health. It is vital for reducing many chronic health risks, such as obesity, heart disease, diabetes, hypertension and cancer.[1] A healthy diet involves consuming appropriate amounts of all essential nutrients which can be obtained from many different foods and especially adequate amount of water.[2-3] Healthy diet needs to have a balance between macronutrients (fat, protein, and carbohydrates) and calories to support energy requirements for human nutrition.[4-5] The guidelines of WHO for healthy diet depend on five recommendations:[6] 1- Make an energy balance to maintain healthy weight. 2- Reduce energy intake from total fats and shift fat consumption from saturated fats to unsaturated ones. 3- Increase consumption of fruits and vegetables, legumes, whole grains and nuts by modulating the serving daily. 4- Reduce the intake of simple sugar by 10% of total sugar. 5- Reduce salt (containing sodium) consumption from all sources and ensure that the salt is iodized.

Unhealthy diet is an important predisposing factor for certain chronic diseases including high blood pressure, diabetes, abnormal blood lipids, overweight/obesity, cardiovascular disease, and cancer.[2] The WHO estimated that 2.7 million deaths every year are attributable to diet low in fruits and vegetables, and unhealthy diet causes about 19 % of gastrointestinal cancers, 31% of ischemic heart diseases globally.[3-4]

People become malnourished when they get low-energy nutrients, while those who consume high-energy nutrients become overweight or obese.[5]

There are four methods for assessment of nutritional assessment. The first is reviewing and recording dietary data and health information (i.e. history of dietary data), which may suggest a nutritional problem in its earliest stages.[7] The second is applying laboratory tests

1 Babel Directorate of Health, Babel, Iraq.

2 Department of Community Medicine, College of Medicine, Al Mustansiriyah University. Baghdad, Iraq.

Correspondence: Dr. Maher Jawad Kadhum, Babel Directorate of Health, Babel, Iraq.

Email: albana.maher@yahoo.com

which may detect the underlying problem before it becomes concrete, whereas anthropometrics (measures such as height and weight) is the third one and the fourth is physical examination (every part of the body that can be inspected may reflect many nutrition problems); picking up the problem only after it becomes symptomatic.[5]

Physical activity is an important part of a healthy lifestyle.[8] The least active person has double the rate of cardiac heart disease than that of active person.[9] Activities in open spaces (such as gardens) use large muscle groups leading to great benefits, *viz.* brisk walking, running, swimming, cycling and stair-stepping.[5-9] Physical activity is crucial for attempting or maintaining weight loss depending on time of activity ranging between 30 to 60 minutes.[10]

SUBJECTS AND METHODS

A structured, self-administered, questionnaire consisting of 28? closed–ended questions, concerning the knowledge of healthy diet and physical activity was distributed to 110 health workers from PHCCs among 6 health districts. The questionnaire was adapted with modification from previous research.[11-12]

The questionnaire addressed questions regarding the following factors: demographic data (age and sex), participants' training in education about healthy diet, meaning of malnutrition disease, methods of nutritional assessment, anthropometric measurements, interpretation of healthy diet, number of servings of fruits and vegetables that should be taken daily, meaning of whole grains, the best type of cooking fat, the best type of milk and its products, diseases related to food, physical activity benefits, importance of social support, frequency of sports in a week, the time spent in sports daily, the best method of transportation to work or to any other place. Knowledge was categorized as good when answers were correct and was categorized as poor when wrong answers were given for different nutrition-related questions. Analysis of data was done using SPSS-18 “PASW Statistics-18”, data was presented as frequency and percentage applied and fisher-exact test whenever it is applicable *(FOR ATTENTION OF PROF. DR. NAZEER KHAN)*. $p<0.05$ was used as the level of significance.

RESULTS

Among the 110 PHC health workers recruited in the study, 58% were males and 42% were females, their mean age was 38.4 years (range 21-58 years) and only 29 of them (26.4%) were involved in training on nutritional programs (Figure 1).

Regarding definition of malnutrition, 54% of PHC health workers stated either under-nutrition or over-nutrition. Nutritional assessment methods were recognized by 19% of health workers, while the majority of health workers (98%) had good information about the relationship between many diseases and unhealthy diet (Table 1).

Respondents were asked about the items of healthy diet and the best number of fruits and vegetables that should be consumed each day. Results showed that minority of PHC health workers specified items of healthy diet [45% of health workers knew <3 items and only 55% were aware of >3 items) (Table 5) and 72% of them reported low frequency of fruits and vegetables consumption <3 servings per day (Table 2)]. 85% of health workers knew definition of whole grain. The respondents stated that the best type of fat was either plant oil (46.3%) or olive oil (48%) (Table 2), and 56.4% answered that low-fat or skimmed milk was better type of milk (Table 2).

Figure 2 shows the importance of social support, as the majority of respondents (98%) agreed that family and friends circle is necessary.

Knowledge about physical activity was assessed by asking the participants about the benefits of doing different types of activities; 35.5% answered 'weight loss', while 54.5% said 'health and fitness'; frequency of physical activity per week was reported by 88.2% of respondents as less than 5, time spent in physical activity in 80.2% of health workers was found to be less than 30 minutes and around two thirds of respondents (65%) reported that walking to and from different places was the best way of transportation (Table 3).

Figure 1: The distribution of health workers according to their training in nutrition courses

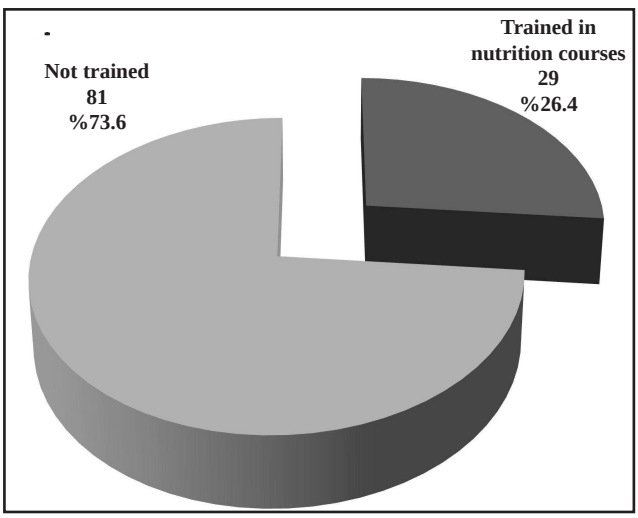

Table 1: The distribution of health workers according to their knowledge about the definition of malnutrition, nutritional assessment method, and relation between diet and disease.

	No	%
Malnutrition definition Under-nutrition	47	42.7
Over-nutrition	2	1.8
Both	57	51.8
No answer	4	3.6
Nutritional assessment method Clinical signs	28	25.5
Anthropometry.	50	45.5
Laboratory investigation	9	8.2
All of them	20	18.2
No answer	3	2.7
Relation between diet and many disease Yes	108	98.2
No	2	1.8

Table 2: Distribution of health workers according to their knowledge of healthy diet about the number of food groups, type of milk and dairy products, definition of whole grain, type of fat, and daily servings of fruits and/or vegetables.

	No	%
Food groups <3 groups	45	40.9
3	65	59.1
Daily number of servings of fruit or vegetables >3	31	28.2
<3	79	71.8
Whole grain definition Known	89	80.9
Unknown	16	14.5
No answer	5	4.5
Type of fat Plant oil	51	46.4
Olive oil	53	48.2
Plant fat	6	5.5
Type of milk and dairy product. Whole milk(full fat)	43	39.1
Skimmed or low-fat	62	56.4
No answer	5	4.5

Figure 2: Distribution of health workers according to their knowledge about the importance of social support.

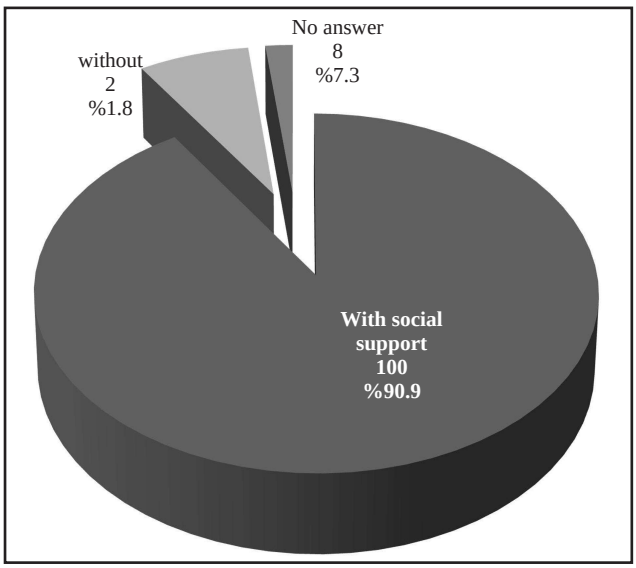

Table 3: Distribution of health workers according to their knowledge about the benefits of physical activities, frequency, time spent, and mode of transportation.

Benefits of physical activity Weight loss	39	35.5
Health and fitness	60	54.5
Pleasure and enjoyment	8	7.3
No answer	3	2.7
Frequency of physical activity per week <5	97	88.2
=>5 times/week	8	7.3
No answer	5	4.5
Time spent for physical activity < 30	89	80.9
= 30 minutes/day	17	15.5
No answer	4	3.6
Way of transportation Walking	72	65.5
Bicycle	13	11.8
Car	25	22.7

Table 4: Distribution of health workers according to knowledge scores in training programs. (Trained=29, Not trained=81)

Knowledge score		**Not trained**	**Total**	**X^2; P value**
Definition of malnutrition	Good	36	57	X^2=4.60 **P<0.05***
	Poor	41	49	
Nutritional assessment methods	Good	10	20	X^2=5.79 **P<0.05***
	Poor	69	87	
Diet-related diseases	Good	80	108	X^2=2.40 P>0.05
	Poor	1	2	
Number of groups of healthy diet	Good	38	45	X^2=3.69 **P<0.05***
	Poor	43	65	
Servings of vegetables and fruit	Good	21	44	X^2=19.09 **p<0.05***
	Poor	58	66	
Whole grain	Good	64	89	X^2=0.21 P>0.05
	Poor	10	16	
Best type of cooking fat	Good	76	104	X^2=0.01 P>0.05
	Poor	5	6	
Milk	Good	42	62	X^2=1.11 P>0.05
	Poor	34	43	

* Level of significance = p<0.05

DISCUSSION

Malnutrition: The present study sought to address health workers' awareness of malnutrition and there was an agreement that malnutrition means under-nutrition and over-nutrition. However, there were about 42.8% of respondents according to whom malnutrition means under-nutrition only which indicated knowledge gaps in this aspect.

Nutritional assessment methods: This study also determined information of health workers about methods of nutritional assessment, 18.2% specified all methods of assessment and 44.5% of them were aware of anthropometric methods which indicated that knowledge of health workers regarding this subject

was poor. Each of these methods involves collecting data in various ways and interpreting each finding to create total pictures.

Healthy diet: Majority of health workers specified less than 3 items of healthy diet and stated that food from all groups are needed each day for good health and to ensure nutrient adequacy. According to new pyramid of healthy eating and physical activity adopted by USA, there is a variety of food groups and oil. Furthermore, this pyramid encourages to eat more fruits and vegetables and to eat less total fat and less saturated fat and not less than eight glasses of water in addition to dairy products.[13]

Vegetables and fruits consumption: According to 72% of respondents, the best frequency of fruits and vegetables daily consumption was less than 3 servings per day. Results of chronic non-communicable disease risk factor survey in Iraq revealed that 91.4% of respondents reported low frequency of fruits or vegetables consumption (less than 5 servings per day). Population should be encouraged to increase consumption of vegetables and fruits up to 5 servings per day.

Oil: About 95% of health worker opined that plant oil and olive oil are the best type of fat used for cooking.

Whole grain: about 80.9% of respondents knew whole grain. Grain can be divided into refined (many different nutrients are lost during processing), enriched (some nutrients added/fortified), or whole grain (rich in fibers and all nutrients found in the original grain). The most preferable type is the whole grain product which supports good health and **should comprise half of the grain daily?**.[14]

Milk and dairy products: About 56.4% of respondents regarded skimmed (no fat) or low-fat milk as the best milk consumed. Milk and dairy products are important sources of calcium, but also contain excess sodium and fat. People should encourage drinking milk which is free of fat or low fat to meet their vitamins and minerals needs within their energy and fat allowances.[15]

Physical activity: It is shown that most of the respondents (95%) had good information about advantages of physical activity and about 92% reported that social support is necessary for sports activity, 88.2% reported frequency of physical less than 5 times per week, time spent by majority of health workers was less than 30 minutes/day. Benefits of regular aerobic physical activity involve reduction of abdominal obesity and improvement in blood pressure, insulin resistance, and cardiorespiratory fitness, strengthening of heart muscle, regardless of weight loss.[16]

In addition to exercising, a person can incorporate hundreds of energy-expending activities in to daily routine, *e.g.*, using stairs instead of elevator, walking to neighbor's apartment instead of making a phone call, sitting uses kcalories as compared to lying down, standing uses more calories than sitting, and moving uses more kcalories than standing.[17]

REFERENCES

1 WHO. Promoting fruit and vegetables consumption around the world.)Çhttp://www.who.int/deitphysicalactivity/fruit/en/index.html).

2 M Popkin, Glbal nutrition dynamics: the world shifting rapidly toward a die linked with non communicable disease American JOURNAL OF CLINICAL NUTRITION84 2006.

3 WHO. Diet and physical activity: a public health priority (http:/www.who.int/dietphysicalactivity/en/).

4 Lopez AD, Mathers CD, Ezzati M, Jamison DT & Murray CJ: Global and regional burden of disease and risk factors, 2001: systemic analysis of population health data. Lancet, 367(9524):1747-57.

5 Rolfes SR, Pinna K & Whitney E. Understanding normal and clinical nutrition, Rolfes SR, Pinna K, Whitney E, 8th edition).

6 WHO/FAO release independent expert report on diet and chronic disease. (http:/www.who.int/mediacenter/news/release/2003/pr20/en/.retrieved21february 2011.

7 S.P. Murphy, S.I. Barr, and M. I. Poos, using the new dietary reference intake to assess diet: A map to thr maze, NUTRITION Reviews 60(2002)267-275

8 Physical activity guidelines for AMEREICANS. THE NATIONAL HEART, LUNG, AND BLOOD INSTITUTES -2008.

9 Thompson PD et.al. Exercise and physical activity in the prevention and treatment of atherosclerotic cardiovascular disease, Ciculation 107 (2003):3109-3116.

10 Lichtenstein et.al., 2006.

11 American Dietetic Association and Dietitian of Canada: journal of the American Dietetic Association 107(2007).

12 National heart lung and blood institute, physical activity and your heart .healthy Arkansas 2008.

13 Mahan LK, Escoll-Stump S & Krause S. Food and Nutrition Therapy 12th edition-2008)

14 Backstrand JR. The history and future of food fortification in the united States: A public health perspective, Nutrition Reviews 60(2002):15-26.

15 Ranganathan R et.al. The nutritional impact of dairy products consumption on dietary intakes of adults (1995-1996): The Bogalusa Heart Study, Journal of the American Dietetic 105(2005):1301-1400); LG Weinberg, LA Berner, and JE Groves, Nutrient contributions of dairy foods in the United State. Continuity Survey of food intake by individuals, 1994-1996, 1998, Journal of the American Dietetic A association 104(2004):895-902.

16 Gutin B et.al. Effect of exercise intensity on cardiovascular fitness, total body composition and visceral adiposity of adolescents, American Journal of Clinical Nutrition 75 (2002): 818-26.

17 A Colorado statewide survey of walking and its relation to excessive weight, Medicine and Science in sports and exercise 37(2005):724-730.